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THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—10TH YEAR. SYDNEY: SATURDAY, MARCH 17, 1923. No. 11.

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HISTORICAL NOTES FROM THE RECORDS IN THE BRISBANE HOSPITAL (1850-1870).[1]

BY E. SANDFORD JACKSON, M.B., B.S. (MELBOURNE),
Brisbane.

WHEN in 1850 Dr. Keith Ballow died of typhus fever Dr. William Hobbs was appointed Resident Surgeon and held that office until the end of the year, when at the annual subscribers' meeting in connexion with the hospital Dr. Frederick Barton was appointed. The latter held office till 1864.

Dr. William Hobbs.

In a former article read by me at your meeting on April 7, 1922, I gave you a sketch, so far as I was able, of Drs. Cannan, Simpson and Ballow.[2] Dr. William Hobbs played no less a part in the medical affairs of Brisbane in the early days. I now present to you a sketch of him.

He qualified as a member of the Royal College of Surgeons, England, in 1843 and came to Queensland in 1849 as Surgeon Superintendent of the *Chaseley*, which was the second ship to arrive with immigrants selected by John Dunmore Lang. The same ship brought Mr. and Mrs. David McConnell, of Cresbrook, and the Reverend T. Kingsford.

Dr. Hobbs began practice at once in Eagle Street, Brisbane, in a house which formerly stood near where "Parbury House" does now. His first and perhaps his only official association with the Brisbane Hospital, except as a member of its first committee, was upon the death of Dr. Ballow, when he was appointed Resident Surgeon to the hospital at the end of the year 1850. Evidently Dr. Hobbs proffered his services to fill a gap. I knew him in later years and it seems likely to me that the doctor hesitated to take the Resident Surgeon's billet because of a reluctance, which was at any rate evident in his later years, to do operative surgery.

But there are notes in the records of the hospital which show that his services were available to the institution and it is even probable that he administered chloroform on the first occasion of its use in our hospital.

Chloroform had been discovered little more than a year before the ship *Chaseley* left England and brought the doctor to Moreton Bay Settlement. It seems likely that he may have been the first medical man to have administered it in Brisbane. He gave it for Dr. Barton to operate on a patient with extensive cancer in 1854 and that occasion may have been its first use in Brisbane.

[1] Read at a meeting of the Queensland Branch of the British Medical Association on February 2, 1923.

[2] THE MEDICAL JOURNAL OF AUSTRALIA, June 24, 1922, page 685.

Dr. Hobbs was essentially a physician. All his interests were rather in the direction of physic than in that of the knife. He was nearer one's conception of the best type of the old English family physician than any man whom I ever saw; a gentleman to his finger tips, gentle in his manner and kindly in his disposition.

Among his duties were those of Government Medical Officer. These included the care of various sick persons and also that of the female inmates of the Lock Hospital. It was in the care of the latter institution that I was more closely associated with him.

The diseases to be seen there were in those days more serious in their manifestations than they are nowadays and often the good old doctor was moved to compassion. He would stand by the bedside of one of these unfortunates and fall into a reverie, from which he would presently emerge with a quotation, partly addressed to himself and partly to his assistant colleague: "Truly, the way of the transgressors is hard!" and pass on his way, making suggestions as to treatment.

Among his duties as Government Medical Officer was that of inspecting the remains of such as died suddenly and those for whom no doctor's certificate was available.

Once on a time when I, then in unofficial charge of the Lock Hospital, was on a holiday in the south, there died a prematurely born infant, whose demise had taken place in that hospital before the doctor could be summoned. In the ordinary way the matter was referred to Dr. Hobbs and all would have been well and in order, but for the fact that a similar death of another premature infant occurred in the suburb known as Lutwyche.

The friends of this latter child—very ignorant people—somehow brought their poor little corpse into town to Dr. Hobbs's private house in Wickham Terrace and managed to convey to him the idea that the hospital authorities had instructed them to do so, in order to obtain a certificate.

Dr. Hobbs thought that it was the same child for whose certificate he had already arranged with the hospital authorities. Can you wonder that he was very angry?

There was an old committeeman of his acquaintance—one of those committeemen who had a strong sense of his duty in that office. He met this gentleman in the street soon after the visit of the little corpse from Lutwyche. The good doctor mentioned what (he believed) had happened to him at the hands of the hospital staff. So off the two old gentlemen went, post haste to the hospital.

There they held a formal inquiry into the matter. They summoned to their presence the dispenser and the head wardsman, the two officers most concerned in the disposal and care of the hospital dead in those days.

The latter testified to having carried the body to the morgue and there having left it. The former declared that he had received it and locked the door upon it with a key which had been in his possession ever since and wound up his evidence by saying that he did not see how the corpse could have been brought into the doctor's house, unless it had been taken through the window of the morgue.

That suggestion, however, was not at all likely—too absurd to be entertained for a moment. And yet there was no explanation!

It was most annoying to be so baffled and you may be sure that the doctor's kind heart was worried very much as he drove his old friend back to town, both of them filled with a desire for the elucidation of the mystery and both of them hopeless of such an achievement. They had come to a block—a dead end, if you like.

Still discussing the supposed scandal, they stopped to have a cup of tea at the doctor's. Even the tea did not put a stop to their turning over this explanation or that, but she who brought the tea did.

She called the doctor outside the room and told him that she had overhead portions of the conversation between him and his old friend and that she thought he must have made a mistake. She herself had admitted to the waiting room that little procession from Lutwyche, bringing the dead child, and the persons in charge of it had told her that they came from that suburb. So it was not the hospital child after all!

All's well that ends well! Both old gentlemen told me about it on my return from my holiday and managed to extract a little joke out of the episode.

Dr. Hobbs did much to introduce dugong oil as a substitute for cod liver oil, using it in all the diseases for which the latter long held reputation. He published a lecture on dugong oil under the title "Elaiopathy," to which reference is made in Lang's "Queensland." (Spongiopiline soaked in dugong oil was a favourite treatment for phthisis with Dr. Hobbs.)

He had a property at or near Humpy Bong and there he discovered a spring with chalybeate properties, in the efficacy of which he believed in the treatment of anæmia and allied complaints.

General Spencer-Brown tells me that the springs are near the mangrove covered borders of Deception Bay, about due west from the southern end of Queen's Beach, near the borders of Campbell's farm, in a tee-tree swamp. There are still signs of the excavations that were made by Dr. Hobbs. The water is crystal clear, with a taste of strong ink. The springs are now quite neglected.

While the doctor lived in the house in Eagle Street, he built the stone house now known as "The Deanery," which stands in the Cathedral grounds.

In December, 1859, when Queensland was separated from New South Wales, the house was let to the Government as a residence for Sir George Bowen, first Governor, and in the meantime the doctor resided in a cottage in Elizabeth Street, near the Saint Stephen's Cathedral. He then built a house in Adelaide Street, in front of "The Deanery" and at the back of the National Hotel and lived there till, Government House having been built in the Domain, he removed to the present deanery and resided there until 1883. It was at "The Deanery" that the address of welcome to the Governor was presented.

In that year he sold "The Deanery" and bought "Bay View," in Wickham Terrace, opposite the Observatory. Here, after a trip to the old country, he lived until his death on December 8, 1890.

The house in Eagle Street was afterwards occupied by Dr. Gunn, who was at one time on the visiting staff of the hospital.

Dr. Hobbs held many public appointments and was visiting surgeon to most of the Government institutions. He was also a member of the Legislative Council for many years. It is chiefly, however, as the trusted family medical practitioner that he has been remembered.

He married Miss Anna Louisa Barton, a sister of Sir Edmund Barton, of High Court fame. They were well known for their kindly hospitality. Like the "fine old English gentleman" whom he so closely resembled

> "They opened house to all,
> And though they feasted all the Great
> They ne'er forgot the Small."

Dr. Hobbs was one of the pioneer cotton growers. To what extent and where he conducted these activities I do not know. Cotton grown by him was sent among other samples by Dr. Lang to Manchester, where its value was estimated by experts to be twenty-two pence per pound. It was probably sea island cotton, grown from seeds obtained from the estate of another member of our profession, Dr. Thompson, who in the early 'forties was Inspector of Hospitals for New South Wales. He grew cotton near Flinders Peak, above Ipswich, and later seeds were obtained by others from these, amongst them Drs. Ballow and Hobbs.

Dr. Ballow grew cotton in the hospital garden in George Street and I think Hobbs got the seed from him and probably grew more at Redcliffe.

Dr. Hobbs, as a member of the Legislative Council, was once arrested by the Sergeant-at-Arms by order of the Speaker for being absent at roll-call. It is reported that shortly after the Speaker was induced to regard the doctor's explanation as satisfactory.

Dr. Hobbs died in December, 1890, and was buried at Toowong.

Dr. Frederick Barton.

Dr. Frederick Barton came to Brisbane some time before 1845. I have not been able to find out the exact date, but Dr. Lang, in his book, "Queensland," quotes extensively at page 256 from a lecture on the climate of Queensland, delivered by Dr. Barton in August, 1845, and he speaks of him as the meteorological observer for Brisbane. Whether the occupation thus indicated was merely a pastime for his leisure hours, or whether he was officially appointed, does not appear. He was probably at the same time conducting a private practice.

In that lecture Dr. Barton tells us that the most common diseases in Queensland were "ague, continued fever, chronic rheumatism and influenza, the first two being caused by the exhalations of vegetable miasma, the next by undue exposure to wet and night air, the last by some uncommon state of the atmosphere, producing at first ordinary colds, which soon became infectious and epidemic."

Two of the diseases, continued fever and chronic rheumatism, are conspicuous by their absence from the old hospital records between 1825 and 1849. Certainly in those years, if there were a common continued fever it was not typhoid and it did not find its way into hospital. There were, on the other hand, a large number of fevers of the intermittent variety.

Dr. Barton took over the management of the Brisbane Hospital in the beginning of 1851, Dr. Hobbs having acted during the few months that elapsed between that date and the death of Dr. Ballow. He reigned till his death in 1864, during which time he kept the books which recorded admissions of the patients, their symptoms and the treatment adopted.

They were scrupulously done in his own handwriting; page after page of precise histories, showing that he was a most careful practitioner, with a sustained interest in his patients and with a good knowledge of his profession. Moreover, his knowledge of treatment would not be so very far behind in these times. His history taking is an example to men of later generations.

There are records of *post mortem* examinations performed by him which would be a credit even to a man of this generation.

There is no evidence that Dr. Barton took a holiday between 1851 and 1863, except upon one occasion in 1856, when for a short space of time Dr. Hugh Bell relieved him. (Bartley mentions Dr. Bell at the hospital in 1854.)

The following doctors were associated with Dr. Barton at about this time as visiting surgeons: Dr. Swift, Dr. Cannan, Dr. Bell and Dr. Milford. Later there were others.

I may here mention that Dr. Swift was a visiting surgeon for a few years and the only other reference I have been able to discover about him was one alluding to his having discovered a gold mine somewhere near Riverview Terrace, in Kangaroo Point. It proved a duffer!

Of Dr. Cannan I have given you a sketch previously and later I shall do the same of Bell and Milford.

In a hospital committee report in 1863 is reference to Dr. Barton's death and a eulogy of his long service and his distinguished ability. It terminates with these words: "In him the sick have lost a skilful practitioner and the poor a friend." There could be no better testimonial.

Dr. Barton married a Miss Warry, a member of the well-known Brisbane family, and he left behind him a widow and several daughters. His widow afterwards became the second wife of Dr. Hugh Bell and lived a long, honoured life in Brisbane till comparatively recently.

In both the pictures presented by the late Dr. H. T. Bell to the Queensland Branch of the British Medical Association, Dr. and Mrs. Barton are to be seen. In the earlier one they occupy seats in the buggy, as shown in the picture. This must have been taken about 1849 or 1850. In the other one they are to be seen on the front verandah of the cottage. The one which shows them on their front verandah, it seems obvious, must have been taken at a later date than the other.

There is very little to be found in the historical

literature of his times about Dr. Barton. What records one finds about him are in the hospital books and in his own handwriting. They relate to others rather than himself.

I should say he was a retiring man, engrossed in his work, not very "clubbable," very careful in his work and feeling his responsibilities keenly.

In the books of his day there are records of what was probably the first case of leprosy in this State. It was that of a Chinaman, who was admitted two or three times and operated on for senile gangrene. When I came to examine these books, I found the records of the Chinaman underlined with blue pencil and I guessed that someone had been before me. At the end of the book someone, probably Ashburton Thompson, had made a list of the Chinese patients enrolled in the book and on the list was the Chinaman's name, with the definite diagnosis of leprosy against it.

About 1857 Dr. Barton's books begin to show evidence of the appearance of typhoid fever in the Settlement. The cases came first from the Eagle Farm direction, on the road to Pinkenba, and were recorded as *"febris"* or "continued fever," but not till 1863 do the statements published as reports by the committee include the word "typhoid."

Intermittent fever had practically disappeared by that time.

Dr. J. Ruscombe Lansdown.

Dr. Lansdown succeeded Dr. Barton in 1864 and presided over the destinies of the hospital until his retirement owing to ill-health in 1868, when he was succeeded by Dr. Bancroft.

I have been unable to find much evidence of Dr. Lansdown's personality, but he occupied the hospital during a very critical time, as during these years it was forced upon the committee that a removal of the institution from the Supreme Court site was essential to the progress of the hospital.

They consequently began to look round the settlement for a site. They were offered by Sir Robert Herbert, Premier, the present site, with which they were not at all in love. It was too far out, according to their way of thinking. They wanted something nearer and they proposed a site on the "Green Hills," in the direction of Petrie Terrace. (This is not the Green Hill mentioned in the old hymn.)

I think, so far as I can read between the lines, they even had two alternative sites, one of which was probably—in part at least—on the reservation that lies between Petrie Terrace and Countess Street. Nearby at that time existed the building which once had been the female convict factory. Latterly the buildings known as the Petrie Terrace Gaol, the Barracks and the Reception House were on this site which is now occupied by military offices and barracks for soldiers and police.

I fancy that the other alternative proposed by the committee was a site near those now occupied by the Boys' and Girls' Grammar Schools.

Sir Robert Herbert seems to have put his foot down and finally the present site was accepted. That being so, the Colonial Architect, whoever he was, must have been entrusted with the drawing up of plans and he was probably instructed therein more by Lansdown than by anybody else.

The original hospital in Bowen Bridge Road consisted (*i.*) in what we now know as the Block Ward, containing numbers 1, 2, 3 and 4, in front of which was (*ii.*) a little group of buildings now occupied by the Secretary's Office. These were and are still attached to what was then the (*iii.*) Resident Surgeon's cottage, to which was attached by a covered way the doctor's kitchen. Where the laundry now stands was a stone building of small dimensions containing one room only and this was (*iv.*) the mortuary. Between the mortuary and the surgeon's cottage was (*v.*) a double-storied wing of buildings which were chiefly occupied by the nursing staff on the upper floor. On the lower floor was a kitchen which did duty also as a dining room for the wardsmen and nurses. This building extended as far as the present archway at the back of the surgeon's house and there terminated.

All that is on the north side of the archway and in the story above it has been built in later days. Whether there was a distinct laundry or not at that time I am unable to say.

The pictures of the old surgeon's cottage which are in the possession of the Queensland Branch are so like the surgeon's cottage at the Bowen Bridge site that I think Lansdown must have just asked for a similar building with attic rooms above it.

Lansdown seems to have got on well with the committee and his colleagues and other officers and retired in 1868 on the plea of ill-health. Shortly after that he left for the old country. I have come across no trace of him in any of the historical works which have come my way.

During Lansdown's time I think there must have been added to the hospital two wooden cottages which in 1882 stood between the site of the present operating room and the present hospital kitchen. These in my early days were used for the treatment of Kanakas and of patients with malignant and offensive surgical affections.

Soon after Bancroft came to the hospital there was added the building which is now known as No. 6 Women's Ward. It was built on the design of Dr. Joseph Bancroft and originally was utilized as male and female fever wards and the nurses employed in the nursing of fever were, I think, formerly housed in the little annex at the back of it. If you look at the walls of No. 6 about the middle, you will see traces of a very thick brick wall partition dividing the male from the female fever ward, which in after times was converted into an arch and finally removed in my time. I often wished that I could also remove the lunatic asylum windows and the dusty beams overhead which support the roof.

I remember asking Dr. Joseph Bancroft why that dividing wall had been made so thick. He seemed quite surprised that I should ask and said that, of course, it was to prevent the patients who were delirious in one ward from disturbing those in the next.

The new mortuary was built on the hill above where the fever wards now stand on or about the site of the present women's quarters. It stood there in my time. It was, I should say, unique of its kind, in that no provision whatever was made

for the drainage of the material from the mortuary tables.

The move from George Street to what was known as "The Quarries" site in Bowen Bridge Road took place, I believe, in 1866. The annual report from the Committee of the Brisbane Hospital for that year is missing, which is rather a disappointment.

Lansdown upon his retirement went to Europe and the committee recorded their high appreciation of his services in the report of 1868. In the same report special thanks were given to Dr. Gunn, who undertook the management of the hospital between the resignation of Dr. Lansdown and the appointment of his successor, Dr. Bancroft.

Dr. Gunn was a visiting surgeon from 1865 till 1871. Apart from this, I have been able to learn little about him, except that he practised in Eagle Street in the house formerly occupied by Dr. Hobbs and I have been told that two of his daughters married and lived in Queensland and that somewhere in the State there must be many of his descendants.

Dr. Joseph Bancroft.

Dr. Joseph Bancroft was born at Stratford, near Manchester, England, on February 21, 1836. He received his medical training at the Royal Infirmary, Manchester, taking the qualifications of M.R.C.S., England, and L.S.A., and the degree of M.D. of St. Andrew's, in 1859. Between that date and 1864 he practised in Nottingham.

In 1864 he came to Brisbane and began a private practice, which he conducted until 1868.

Soon after his arrival he was appointed visiting surgeon to the hospital in 1866 or 1867, but he relinquished that office for a while upon his appointment as Resident Surgeon in succession to Dr. Lansdown. He remained in the office of House Surgeon until June, 1871, and then went into private practice again, at first in Wickham Terrace and afterwards at the corner of Wharf Street and Ann Street. He held the office of visiting surgeon from 1871 to 1887.

At the corner of Wharf and Ann Streets he built the well-known house which has since been the Soldiers' Residential Club and lately has become part of Saint Martin's Hospital to house its nurses.

Dr. Bancroft gained a European reputation for his discovery of the parent worm in filaria. Dr. Rowlands, of Ipswich, was the first discoverer in Queensland of the micro-filaria. He showed them to Bancroft, who became greatly interested in the subject of filariasis. His discovery of the parent worm was made on April 20, 1877.

Somewhere towards the end of 1882 I took the opportunity of asking Dr. Joseph Bancroft about filaria and the result came in the arrival at my quarters of a most interesting specimen of *filaria immitis* in the heart of a dog, the study of which was of great interest and help. Dr. Bancroft was always ready to help anyone in this sort of way.

His mind had a decidedly scientific bent and his hobby was the study of plants and animals. He had an experimental farm at Deception Bay, where he grew nearly a hundred different varieties of wheat and was fortunate in discovering a rust-resisting variety, suitable for Queensland. I am unable to say whether that variety has stood the test of time.

He also grew Japanese rice and was much interested in the hybridization of fruits. He succeeded in making several good hybrid grapes and a particularly good strawberry.

On these subjects he was always communicative and a walk in a public park with the doctor would impress you with the fact that he knew the history and habitat of every kind of plant there to be seen.

As a practitioner he held sway among a numerous *clientèle* up to the day of his death, which occurred suddenly in 1894.

Amongst his activities at Deception Bay was the manufacture of pemmican, for which he had a contract with the British Government.

I was associated with him during the last few years before his retirement from the visiting staff of the hospital. He had been reappointed to that staff on retiring from the house surgeoncy. He was amongst the best in the use of the catheter. He was in his day the best authority in Queensland on leprosy. He had kept a close watch for that disease and, sitting as he did on the Board of Health for this State, he must have given valuable advice in the segregation and care of its victims. We were always glad to know that he had corroborated our opinions one way or another in a suspicious case of leprosy.

He was the second House Surgeon to occupy the cottage in the hospital grounds at Bowen Bridge and he planted many of the trees that are still to be seen there. There grew in front of the surgeon's cottage at the hospital in my time a large fig tree which had been planted by Dr. Joseph Bancroft. In time it became a great nuisance. Its leaves dropped all over the place and were sticky, after the manner of their kind, so that they were carried into the house on the soles of people's boots. The fruit of the tree attracted flying foxes at night and the squalling arguments of these little beasts throughout the hours of darkness kept the house doctor a victim to insomnia.

Many nights he spent a considerable time shying stones and cursing beneath its over-spreading boughs. Once, indeed, in the early hours of the morning, after pelting from one side of the tree for some time, he became aware that he had a companion in his misery, who was helping from the opposite side. Mr. D. F. Brown, the dispenser, was similarly occupied and each had nearly dropped a stone on the other.

The House Surgeon once slyly asked Dr. Bancroft what was the best way of dealing with flying foxes when they became a pest. He got the characteristic and laconic reply: "Eat them!"

Dr. Bancroft made a somewhat similar reply once when I, being much harassed by press criticism which I considered unfair, confided in the old doctor, asking him how the trouble could be stopped. Again his reply was short. It consisted of one word only: "Duelling!" He was in earnest, too, though in the ordinary way he was not a bloodthirsty man. But you might have thought so if you had seen him in the operating room, getting ready for an operation. He used to wear half Wellington boots, the legs of which were concealed beneath his "trews." Before he began his work he

tucked the latter into the boots, as if he expected to wade to success through a stream of blood. That was not, of course, the true explanation. This little peculiarity was the outcome of a sense of personal cleanliness and a desire to protect his garments, which were always scrupulously clean.

His strong common sense prompted him to the wearing of cotton and silk in the summers of this warm climate.

Among other trees that he had planted at the hospital was a croton oil tree, whose yellow berries were a source of curiosity to me soon after I went there. Dr. Bancroft had planted it and to establish its identity I, of course, went to him. He told me the following story with much gusto:

Long ago, he said, a similar tree grew somewhere in Kangaroo Point. One day some children ate some of its berries and were taken very ill. Their father, finding them in what he thought was a very serious condition when he came home, took a sample of the berries and went off to see the family doctor, an elderly gentleman who lived on the Logan Road. He found the doctor at home, explained what had happened and submitted a sample of the berries, which he had carried in his pocket for the purpose.

He besought the doctor's attendance on the children, but the latter told him that he need not be under any anxiety and that the berries were quite innocuous. The man persisted that the children were looking very ill and again begged the doctor to come.

The doctor, however, had evidently made up his mind that he was not coming to see the children and went so far as to consume some of the berries himself, to show how harmless they were. The anxious parent, somewhat reassured by this apparently convincing argument, went off and returned to his home.

Upon his arrival there he found that the children were in a much more serious condition than they were when he had left them. There was nothing else for it and, with his anxieties redoubled, he rushed back to the doctor again. This time, however, the doctor was himself so ill from the purgative effects of the berries that he could not come. Bancroft had to take his place and with great difficulty he saved the children.

Dr. Joseph Bancroft's period as Resident Surgeon to the hospital was not a peaceful time. He was constantly at loggerheads with various people, as the minutes of committee in the years 1868 to 1870 reveal. A tale related to me by the Honourable Peter Macpherson, who had been a committeeman at that time, is worth relating.

Dr. Bancroft, who was himself a most abstemious man, had made a practice of drawing from the store, then in charge of the Matron, a full bottle of brandy, from which he found it convenient to issue emergent alcoholic rations to such patients as required them during the night.

The Matron of the hospital got to "holts" with him on various matters and she revenged herself by declining to allow the good doctor to draw as much as a bottle of brandy at one time. She insisted—"nobly" as it seems to me, because it would put her to an immensity of trouble—that the doctor should requisition for such stimulants as he required during the night in each case.

Each of the disputants was adamant and the matter was finally referred to the committee. Wonderful to relate, the committee sided in this matter with the Matron, whom they so far backed up that Bancroft was instructed to draw requisitions for small quantities as required. The decision was scarcely testimony to their good sense.

An ordinary man would have said: "Well, the Matron's blood be upon her own head! If she likes to get up to fulfil each requisition as it occurs, it's her look-out!" But Bancroft read the instruction from the committee in a different light. (I have forgotten the wording of it.) He requisitioned for the whole of the stock of brandy that was in the Matron's charge in one act. She refused to recognize his requisition and there was a deadlock.

The store, the keys of which were in the hands of the Matron, was locked. Its windows had always been barred by perpendicular iron rods. The next scene in the comedy was when Joseph Bancroft was discovered by the Matron attempting to catch a bottle of brandy and to remove it from the store shelf with a noose on the end of a bamboo rod shoved through the window.

I fancy that by that time the committee settled down to devise some other means of making peace. I do not suggest that Bancroft's attempts with the bamboo stick were made under the cover of darkness. He was just the man to do it in broad daylight, just to show his independence.

He invented a metal cup to use as an inhaler for giving chloroform and used the instrument himself for many years. It always appeared to be a contravention of almost every rule in the giving of anæsthesia, as it was taught in those days. Nevertheless, so far as I know, no fatalities occurred with the instrument in his hands. I tried it once myself at his suggestion and failed lamentably with it, because I was, I admit, in a terrible "funk." The old doctor finally took the instrument out of my hands and completed the anæsthesia himself.

Circumstances arose which enabled me to avoid the use of the Bancroft inhaler from that time.

Nevertheless, I know the doctor to have used it himself for years after that with no fatalities. Since then I have often quoted it to the younger members of the profession as one of the instances which go to show that there are many ways of anæsthesia beside the "right one," which are safe in the hands of those that know how to use them.

The moral to be drawn is, in the event of having to take an anæsthetic oneself, to select a man of considerable experience and to allow him to use his own methods. That does not prevent you, if you can, from selecting a young man of experience of whose methods you approve.

I think I have now carried the history of the individuals who have occupied the position of Resident Surgeon to the Brisbane Hospital between 1825 and 1870, bringing them up to the latter date.

And here I propose to terminate these so-called historical notes for the present. If you are sufficiently interested, perhaps I may bring the history forward to a still later date at some future time.

THE CARDIAC MUSCLE AND VALVULAR LESIONS IN CHRONIC HEART DISEASE.

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WE have often read that in chronic heart disease it is the efficiency of the heart muscle and not damage to the heart valves which is the important factor to be considered and yet it is difficult to rid our minds of our earliest impressions of the mechanical valve factor in cardiac disease. We unconsciously think of the heart as a muscular pump supplied with valves and, if there is incompetence of a heart valve, the result would appear to be similar to that of a mechanical pump which refuses to work when its valve is out of action. But, on the contrary, we are told the result is not the same. If the condition of the cardiac muscle is the important consideration, then our judgement of a cardiac affection should rationally be based on the efficiency of that muscle and not on this or that valvular incompetency or on the degree of such incompetency. Still, every once in a while our preconceptions will obtrude themselves and we again think in terms of mechanical valve troubles and not of cardiac muscle.

This article is an attempt to explain why the state of the cardiac muscle is of great importance; why, for example, in mitral regurgitation on contraction of the left ventricle the blood will go into the aorta and why it is not all sent back to the left auricle. On the analogy of a simple mechanical pump, the circulation ought not to go on at all, whereas we know that the aortic valves have been destroyed in dogs and to all appearances the animals have been able to run about as before.

I propose to approach the question by considering in the first place what happens in a healthy heart with no valvular damage during exercise and in the second the condition obtaining in the case of mitral regurgitation.

The Output of the Heart.

The output of the heart in man at rest has been found by Krogh to be from three to five litres per minute and during heavy muscular work to reach twenty litres or more per minute.(1) It is true that this increased output is brought about in part by an increased rate of beat; but, what is more important, it must be brought about by an increased output per beat. Let us suppose there was no increased output per beat. For the heart to be capable of putting out each minute during exercise four times the quantity it puts out at rest, the heart rate would have to be quadrupled, even allowing that at a hypothetical ventricular rate of, say, 280, each beat would be capable of putting out as much as it did when beating at 70. This it could not do, as we know the cardiac embarrassment that exists from a great increase of rate in cases of paroxysmal tachycardia.

If the heart then has to put more blood out each beat, it must dilate[1] in diastole to receive more and the venous inflow must be increased. The venous inflow is increased chiefly by the action of the skeletal muscles and by the movements of the diaphragm in respiration. The circulatory problem with a healthy heart in muscular exercise is to provide this increased venous inflow and not to obtain an increased output.

The Mechanism of the Muscle Fibre.

Considering the heart as a hollow muscular organ, dilatation must mean a lengthening of the individual muscle fibres of which the heart is composed. The question of lengthening of muscle fibres must now be considered.

It is a matter of simple physiological experiment to prove that in a frog's muscle-nerve preparation the energy set free on the muscle's contraction or the work the muscle can do is in proportion to the length of the muscle before it begins to contract. Within physiological limits a stretched muscle does more work on its contraction than one which is not stretched.

Another important point can be brought out in the simple experiment on the frog's muscle. As a muscle becomes fatigued, it fails on contraction to do as much work as before fatigue set in when stretched to the same degree. Let us put this obvious statement in another way. A fatigued muscle has to be stretched more than one that is not fatigued to enable it to do the same amount work, of course, within physiological limits of response.

We can now apply these principles to the heart and its application is embodied in what Starling has termed the law of the heart.(2)

The diastolic volume or degree of dilatation of the ventricle is a measure of the length of its individual muscle fibres, so that the force with which the ventricle contracts depends on the degree of its dilatation. The dilatation depends, as has been said, on an increased venous inflow. As the venous inflow increases, the diastolic volume of the heart increases. It takes four or five beats before the ventricle is dilated enough or its fibres are lengthened sufficiently in order to allow it to develope sufficient energy of contraction to give the increased output per beat that the increased venous inflow entails. Further, there is no question of an active dilatation on the part of the ventricle. It is not dilated by the *vis a tergo*. The ventricular walls passively "give" to the oncoming blood. Experimentally it is not until the inflow is very great that there is any appreciable rise of intra-ventricular pressure at the beginning of ventricular systole. We may think of the dilatation of the urinary bladder, the muscle coat of which stretches to accommodate the incoming urine. There is an increase of pressure developed in the bladder, but this increase is not in proportion to the amount of urine entering.

Physiological Dilatation of the Ventricle.

The physiological limits of dilatation are determined by the pericardium.(3) The pericardium in health does actively limit over-distension of the heart. It is found, further, that as soon as any rise of pressure occurs during the diastolic filling

[1] The word dilate is used in its physiological sense and does not refer to a pathological dilatation.

in the right auricle, the rate of the heart becomes increased. This is due to a reflex inhibition of the vagus and to a lesser extent to stimulation of the sympathetic.[4] The increase of rate does not occur if the vagus has been cut. This rise of pressure in the right auricle may be due to increased venous inflow or to the limiting power of the pericardium or to the inability of the ventricle to adapt itself to the increased inflow by an increased output. This last cause would arise from anything which interfered with the efficiency of the cardiac muscle, that is, with its power to stretch physiologically.

Let us take the other side of the story. Suppose we increase in a normal heart the arterial pressure. The ventricle is unable at the first beat to put out its usual amount. It has to dilate and it dilates or its muscle fibres are stretched as far as is necessary for them to develope sufficient energy of contraction to give an increased output into the aorta at the increased arterial pressure. In passing, it may be noted that the rise of blood pressure brings about an increased blood supply to the heart by the coronary circulation when it is needed.

Supposing the right ventricular output per beat is ten cubic centimetres and the left ventricular output is ten cubic centimetres and the average arterial pressure is 80 millimetres of mercury, with systolic and diastolic pressures of 100 millimetres and 60 millimetres of mercury respectively. We now raise the average arterial pressure to 120 millimetres of mercury. The first beat may expel only three cubic centimetres of blood, leaving seven cubic centimetres in the left ventricle and at the end of diastole it will contain seven cubic centimetres more. To do this it will dilate. The second beat may expel eight cubic centimetres, leaving an excess of nine cubic centimetres of blood. The third beat may expel ten cubic centimetres, which is the original output. The circulation is carried on as before with a ventricle whose fibres are stretched to enable it to do the increased work, ejecting ten cubic centimetres per beat, but containing more blood in the left ventricle than it did before, both in diastole and systole, so that it never empties.[5]

Table I. puts the subject briefly:

TABLE I..

Arterial Pressure Average.	Heart Beat.	Right Ventricle Discharge.	Left Ventricle Discharge to Aorta.	Excess Left in Left Ventricle.
80 mm. Hg.	—	10 c.cm.	10 c.cm.	——
120 mm. Hg.	First	10 c.cm.	3 c.cm.	7 c.cm.
120 mm. Hg.	Second	10 c.cm.	8 c.cm.	9 c.cm.
120 mm. Hg.	Third	10 c.cm.	10 c.cm.	9 c.cm.
120 mm. Hg.	Fourth	10 c.cm.	10 c.cm.	9 c.cm.

We see here a beautiful adaptation to bring about an increased output during exercise. Increased inflow means increased stretching of the ventricle, which gives it increased power of contraction. If the ventricle cannot do its normal work on account of fatigue or disease of the musculature or if there is an increase of pressure in the right auricle due to any of the causes mentioned above, then we get an increased rate of beat rather than an increased output per beat. In this way the output per minute is increased.

The two factors work hand in hand; in one case more dilatation and less increase of rate and in the other case less dilatation and more increase of rate. The healthy muscle in good condition belongs to the former group.

We see, just as in the fatigued frog's muscle, that a fatigued ventricle or one whose muscle has been damaged by disease, has to undergo more stretching, more dilatation than a normal healthy heart in order to do the same amount of work.

We see why in a trained man during exercise the ventricle increases its output per minute by an increase of output per beat rather than by an increase of rate and in the untrained man we get an increase of rate rather than an increase of output.

We can understand why in chronic heart disease the heart becomes enlarged. There are grave cardiac conditions without enlargement; but that is another story. We have the answer why the condition of the cardiac musculature is of such great importance in the consideration of cardiac disease.

Finally, we have a clearer conception of what is meant by the reserve power of the heart and one thing the reserve power of the heart does mean is the ability of its muscle fibres to dilate or stretch physiologically according to the demands made upon them. I have assumed that the permanent cardiac dilatation in disease is part of the same process at work during exercise, that the pathological heart is a permanent condition of a normal physiological process. Perhaps it may be said there is no justification for this, but I see no other way out than to admit that a diseased cardiac muscle has to stretch permanently in a greater or lesser degree according to its condition or "tone," to do the resting work of a healthy heart.

The Effect of Exercise.

Many observers have endeavoured to investigate the variations in the size of the heart as the result of exercise, by means of the ortho-diagraph, which is an instrument devised for the measurement of the heart by means of X-rays. It seems to be true that after exercise the heart is smaller than before and when we think that during exercise the coronary blood supply to the heart is greatly increased, we might expect this result. We have seen it is a matter of a few beats for the heart to dilate during exercise. As it is also a matter of a few beats for the heart to resume its normal size after exercise, all the evidence brought forward as to the size of the heart before or after exercise does not disprove the contention that the size of the heart is increased during exercise.

An increase of four millimetres in the transverse diameter of the heart has been found during exercise. Such an increase represents the difference in the resting heart of its diastolic and systolic volume. Krogh has determined the output of each ventricle in man at rest to be sixty cubic centimetres

per beat, so that one hundred and twenty cubic centimetres leaving both ventricles each beat is represented by a measurement of four millimetres in the transverse diameter of the heart. Krogh and Lindhard have proved by other methods that the output of the heart per beat may be doubled or more than doubled during exercise.[6]

The difficulty in measuring the size of the heart by direct observation during exercise is a technical one. The proof of an increase in size by actual measurement is not definite.

Mitral Regurgitation.

Now let us consider what happens in mitral regurgitation. If I have dealt at considerable length on the physiology of the heart during exercise, it is because it seems to me essential for the proper appreciation of the pathological heart and forms a necessary introduction.

Wiggers and Feil[7] have investigated the subject of mitral incompetence produced experimentally to determine why the blood in the left ventricle during its contraction is not all expelled through the mitral orifice and how the left ventricle can get up enough pressure to open the semilunar valves in the presence of a mitral incompetency.

Their work was done by taking simultaneous pressure curves in the left auricle and left ventricle by means of the optical manometer. Curves were also taken of the intra-aortic and intra-pulmonary pressures. They used a sound fitted with a plunger, which was inserted through the ventricular wall. With this instrument the mitral valves were made incompetent and normal conditions of the valve were resumed at the will of the experimenter.

During the isometric contraction phase of the left ventricle, that is, the period of ventricular systole before the semilunar valves open, there is little, if any, increase of pressure in the left auricle after a lesion of the mitral valve has been produced. This means that there is no regurgitation into the left auricle at this period. Regurgitation takes place in the systolic ejection phase of ventricular contraction and also during the early phase of ventricular diastole, the so-called proto-diastolic and isometric relaxation phases. This early diastolic period lasts about 0.08 second and represents the period between the closure of the semilunar valves and the filling of the ventricle. It will be remembered that filling of the ventricle begins early in ventricular diastole. Blood flows from the pulmonary veins into the left auricle and into the left ventricle long before auricular systole begins. The pressure in the left ventricle during this period is necessarily less than that in the left auricle and hence there can be no regurgitation to the left auricle during diastole.

The isometric contraction phase or the phase of rising pressure in the ventricle lasts over a period of 0.05 second. The reason that there is no or very slight regurgitation during this period, it is stated, is that it takes this short interval to overcome the inertia of the blood within the ventricle, with the result that the blood is not set in backward motion until the aortic valves open.

The immediate effect at the first beat after the production of a lesion is the ejection of blood into the aorta and also into the left ventricle. There is, therefore, a lowering of systolic and diastolic pressure in the aorta and at the second beat the ventricle has not to get up so great a pressure to open the semilunar valves. A portion of its load has been removed.

The regurgitation into the left auricle raises the pressure in this cavity. This rise of pressure is only seen during the period of regurgitation from the left ventricle. When this period is over, namely, the systolic ejection phase and the isometric relaxation phase, the pressure in the left auricle rapidly falls. This shows that the regurgitated blood is all accommodated in the left auricle and the entering veins. The left auricle increases in volume and dilates to the regurgitated blood. Here again we see how the muscular walls of the cavities of the heart can dilate and "give way" passively to accommodate any increase in the amount of blood. Just as was mentioned above, there is no rise of intra-ventricular pressure when the ventricles are distended in diastole from a larger inflow. There is a rise when we reach extreme limits.

The left ventricle is in the condition of having a greater reservoir of blood to draw on, precisely as we saw in the heart during exercise, when the right ventricle has a greater venous inflow. The result is the same in both cases. The left ventricle dilates to accommodate the increased amount of blood received from the left auricle and the total output of the left ventricle is increased. By the total output I mean the output into the aorta and also the output backwards into the left auricle.

After four or five beats stabilized conditions have been obtained. The left ventricle has dilated and its total output has increased to such an extent that its aortic output has risen to what it was before producing the lesion.

Let us suppose that the left ventricle, after the lesion, did not pick up its normal output to the aorta. The output of the right ventricle is not reduced on production of a lesion, as there is no change of pulmonary pressure, systolic or diastolic, and we have seen that the rise in pressure in the left auricle only occurs during the period of systolic ejection. If the right ventricle puts out ten cubic centimetres per beat and the left ventricle eight cubic centimetres per beat, it would only be a matter of a short time before the pressure in the left auricle would mount and mount until continued circulation became impossible.

The increased pressure in the left auricle during each ventricular systole remains permanent after the first few beats and does not go on increasing; such increase is found only during the period of regurgitation, that is, during ventricular systole.

As there is no increase of pressure in the left auricle during ventricular diastole, we see that there can be no back pressure effect in a lesion of the mitral valve produced experimentally.[7]

Table II., from the paper of Wiggers and Feil, illustrates the condition:

TABLE II..

Heart Condition.	Heart Beat.	Right Ventricle Discharge.	Tidal Volume.[1]	Regurgitant Volume.	Systolic Ejection of Left Ventricle to Aorta.
Normal	—	12 c.cm.	12 c.cm.	0 c.cm.	12 c.cm.
Artificial Mitral Insufficiency ..	First	12 c.cm.	12 c.cm.	3 c.cm.	9 c.cm.
	Second	12 c.cm.	15 c.cm.	4 c.cm.	11 c.cm.
	Third	12 c.cm.	16 c.cm.	4 c.cm.	12 c.cm.
	Fourth	12 c.cm.	16 c.cm.	4 c.cm.	12 c.cm.

This gives us a conception of the function of the auricles in the heart when undergoing its constant changes in output under various conditions of rest and work. The auricles should not be looked on as chambers which by their contraction alone play an important part in the mechanics of the cardiac cycle. They are blood reservoirs, so that at no time, even at rest, are the ventricles left without blood to eject into the arterial system. In Stokes-Adams's disease we see the effect of even a momentary stoppage of the arterial stream. In auricular fibrillation the auricles do not contract, but it is not this fact that affects the heart in any degree. Consciousness is quickly lost if the ventricles stop pumping or if there is a temporary loss of blood to pump.

Now it may be said that in the presence of mitral regurgitation the left ventricle does have more work to do and is therefore handicapped, so why does current opinion tell us that the condition of the valves is not so important as was once thought. The extra work the left ventricle has to do is not as great as would appear when we consider that the regurgitated blood leaks back and is not forced back against pressure. On the other hand, the left ventricle is already dilated to some extent and this must interfere with its power to dilate further when called on at any time for increased output. This opens up the question of the cardiac reserve.

Reserve Power.

It is found by Krogh[1] that the ventricular output in a healthy man may vary from three litres at rest to twenty-one litres of blood per minute as the result of hard exercise. This points to a great reserve power in the heart, a reserve power which is well able to cope with the disability of a leaking valve. Actually, of course, disease of valves involves more or less damage, either temporary or permanent, to the musculature. The same condition that damaged the valve, may have damaged the muscle. But there is no correlation between the damage of a valve and the degree of involvement of the cardiac muscle. The cardiac muscle may be extensively damaged in the absence of any disease of the valves.

As Lewis[8] puts it: "The development of cardiac failure with congestion in congenital lesions of the heart, lesions such as pulmonary stenosis, which often impose greater burdens than do inflammatory lesions" (of valves) "is rare. That is so because the valvular defect is uncomplicated, the muscle is clean and healthy."

[1] The tidal volume is the volume of blood expelled from the left ventricle.

The accompanying figure illustrates the condition.[8] The work of the heart and its reserve are represented in columns:

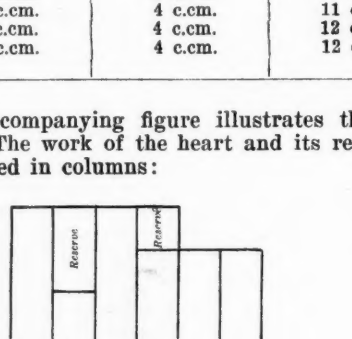

DIAGRAM FROM LEWIS'S "THE SOLDIERS' HEART AND THE EFFORT SYNDROME.

Shaded Area = Rest Load. Black Area = Aortic Load. *A*—*D*: Healthy muscle. *E*—*F*: Slightly Deficient muscle. *G*: Deficient muscle. *H*: Very deficient muscle.

A represents the load put on the healthy heart at complete rest. *B* represents the healthy heart putting out its maximum quantity of blood during severe exercise. *C* is a hypothetical case. A heart with aortic regurgitation in which the cardiac muscle is supposed to be perfectly healthy. *D* represents certain cases of aortic reflex with an almost normal exercise tolerance. In *E* the reserve is just exhausted on exercise, but ample for all the usual calls of every-day life in *F*. In *G* the reserve becomes greatly diminished, until in column *H* the heart muscle is very deficient and the rest load and aortic load are all that the heart is capable of carrying. Such a heart is just capable of maintaining the circulation when the body is at complete rest, but it is capable of no more (Lewis).

This aspect of cardiology gives us a rational means of assessing a cardiac affection at its real value. We require to know the condition of the cardiac musculature and for this reason in a chronic cardiac lesion the investigation of the heart's power to do work and of the tolerance of the patient to exercise ranks of the first importance. I refer to

cases of chronic cardiac disease and I do not say that people with a poor exercise tolerance have necessarily bad hearts, which would be absurd.

Secondly, the presence of enlargement of the heart tells us how much the enfeebled muscle fibres of the heart have had to stretch permanently, raising thereby sufficient energy of contraction to do the ordinary work of the heart. An enlarged heart is a diseased heart. If a heart is not enlarged, it may still be diseased. But that is another story. A healthy heart during exercise dilates to increase its output, an enfeebled heart dilates and thus keeps up its normal resting output.

The earliest manifestations of failure begin to be shown when the heart can no longer keep up its output and consequently they appear on exertion, when exertion has so far encroached on the remaining cardiac reserve (see Figure, columns *D* and *E*).

The Cardiac Muscle in Heart Disease.

The next consideration that suggests itself is that a diagnosis of heart disease in terms of a valvular condition is not a diagnosis at all. The classification of cardiac conditions under the headings of valvular diseases continually distorts our proper aspect of the subject. We fall back into the error of thinking of valves and not of cardiac muscle. The diagnosis of a heart condition as one of aortic regurgitation gives us no information on which to make any prognosis. If the valve of a common pump is inoperative, it would be quite correct to say that it was valve trouble that makes the pump inefficient, since mending the valve would cure the trouble. In the case of the heart the diagnosis of aortic insufficiency is not a diagnosis, because it is not the valve which is the cause of the trouble. The same process which has involved the valve in disease, has probably caused damage to a greater or lesser extent to the cardiac musculature and a valvular lesion is an indication that the heart must be closely examined and an assessment made of muscular damage.

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Reports of Cases.

PNEUMOCOCCAL PERICARDITIS.[1]

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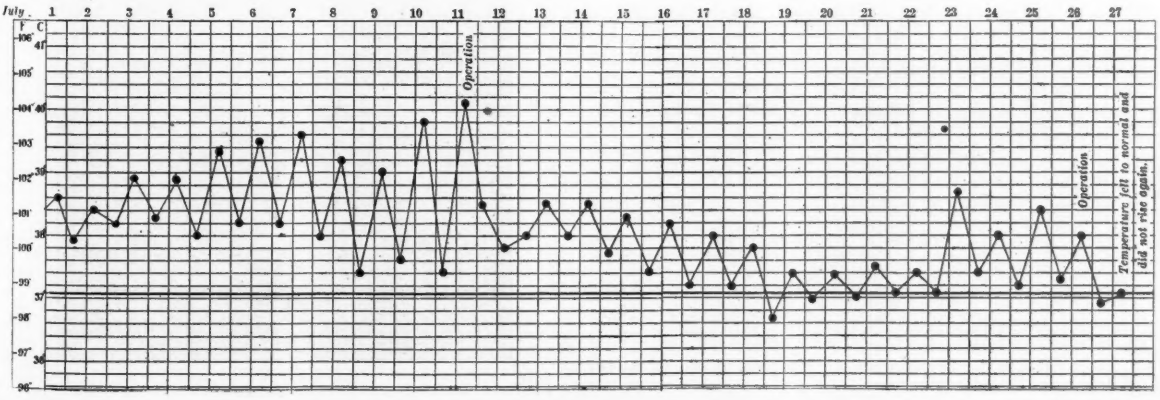
L.W., aged eight and a half years, the son of a colleague, had had diphtheria twice some years previously and had had his tonsils enucleated after the second attack.

The present illness began about June 29, 1922, with a severe sore throat, headache and temperature of 38.5° C. (101.4° F.). He was given "Aspirin" and sodium citrate and put to bed. Next day his temperature was 40° C. (104° F.) at 6 p.m. and he was delirious at night. Numerous urticarial wheals appeared on his body and limbs. On the following day he had severe pain between his shoulders, particularly under the left. The pain was not affected by breathing, which was rapid and grunting. No signs could be detected in the chest.

On July 6, after a week of high fever and acute illness, with very few physical signs except distress on exertion and frequency of micturition, Dr. R. A. Meek (whom his father asked to see him) found severe pericardial friction in the fifth left intercostal space, just to the left of the sternum. He had no pain; there had been no vomiting; the joints were not involved; the temperature was 39.3° C. (102.8° F.), the pulse rate 120 and respirations 32. He took food badly and micturition had been frequent for some days, though nothing could be found in the urine except some doubtful diplococci. The diagnosis tentatively made by Dr. Meek was a rheumatic pericarditis.

He remained in this state till July 11, when his temperature, continuing to rise each evening, reached 40.2° C.

[1] Read at a meeting of the Queensland Branch of the British Medical Association on February 2, 1923.


July
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
F C
Operation
Operation
Temperature fell to normal and did not rise again.

Temperature Chart of Case of Pneumococcal Pericarditis.

(104.4° F.) and the pulse rate was 134 at 6 p.m.. On this day he had a severe colon bacilluria, but as his condition had not yielded to vigorous doses of sodium salicylate and sodium citrate, the diagnosis of empyema was also considered. At Dr. Meek's request I saw him on the night of the eleventh. His condition was then as follows: His lips were pink, his face was pale, the veins of the neck were engorged and there was obvious respiratory distress. The temperature was 39.7° C. (103.4° F.), the pulse rate 142 and the respiratory rate 40, but there was no orthoonœa. The apex beat was not palpable—only a vague impulse. The cardiac dulness extended on the right to a point midway between the nipple line and the sternal margin of the sixth costal cartilage, rejoining the sternal margin at the second right chondro-sternal articulation. On the left the dulness extended from the second chondro-sternal articulation in a curved line to a point 3.75 centimetres outside the nipple line, curving back towards the liver dulness below the nipple. The semilunar space of Traube was encroached on internally, not externally. No friction was audible. Heart sounds were very distant, but clear.

The lungs were normal, except for a small, dull area, with very distant breath sounds at the base of the left lung, just to the left of the spine. A diagnosis of pyopericardium was made after consultation with the boy's father and Dr. Meek concurred. As the boy was steadily growing worse and his embarrassment was already grave, it was decided to puncture the pericardium and, if pus were present, to drain it by open operation. At Dr. Meek's request, Mr. D. A. Cameron was called in and it was decided to operate forthwith.

Under chloroform, ethyl chloride and ether given by the open method the pericardium was first explored in the fifth interspace, just to the left of the sternum, and a small quantity of very thick pus removed. A curved incision with the concavity to the left was then made; the fourth, fifth and sixth left costal cartilages were exposed and the flap thus turned back. All bleeding vessels were seized and tied at once. The cartilages were then divided and turned outwards and the bulging pericardium was exposed. This was divided and at once a large quantity of thick, creamy pus poured out, which, mixed with a little blood, was churned up by the heart into a pink whipped cream. Mr. Cameron introduced his finger; the heart was felt, but he could feel no adhesions and made certain that the pleura was not opened. A soft rubber tube, five centimetres long, was then inserted and the wound closed with silkworm gut sutures. The whole operation from the exploration took under ten minutes. The child stood it very well. He cried at the anæsthetic. His pulse rate rose to 160, at which it remained till the opening in the pericardium, when it rose to about 200 for three minutes, falling as the pericardium was closed to 140 on his return to bed. He had a very good night, sleeping well and taking drinks well. The tube drained well, drainage being much helped by his being placed in a sitting-up position.

The temperature did not fall to normal, but the tube was removed on July 24, the wound looking very well. The pus from the pericardium yielded a pure culture of pneumococcus.

On July 26 he was distressed at night; his temperature rose to 38.5° C. (101.4° F.) in the evening, after having been only 37.2° C. (99° F.) for a week, though his pulse rate remained at 120 and his respiratory rate at 32. There was dulness, diminished breath sounds and absence of vocal resonance and fremitus at the right base and exploration showed the presence of yellow pus.

In view of his condition, aspiration was resolved on. This Mr. Cameron did under chloroform anæsthesia, removing about two hundred cubic centimetres of thin pus containing small staphylococci. He took the anæsthetic perfectly.

From this time he made an uninterrupted recovery. The temperature immediately fell and he was sitting up on August 7, 1922.

On August 24 the wound had completely healed. The pulse rate was about 100 normally, rising by twenty beats on exertion or excitement, and the heart appeared perfectly normal.

On August 25 he began walking with no ill-effects, forty-five days after operation.

On September 15, 1922, Dr. A. T. Nisbet examined the chest with X-rays and reported that there were no signs of pericardial or pleuro-pericardial adhesions and that there was a clear space visible between the pericardial shadow and the actual heart shadow, which he considered to be normal pericardial fluid.

The patient is now (January, 1923) just back from a holiday at the seaside, where he has lived the life of an ordinary boy. He is plump, well-looking and devoid of any symptoms.

The outlook in these cases is usually very bad. One of the few records I have been able to find is in the *Surgical Clinics of Chicago* for April, 1917, in which C. B. Davis gives a very gloomy prognosis. Johnson, in his "Operative Therapeusis," gives an immediate mortality of 60%. Here, however, in view of the boy's excellent condition six months after the operation, it seems permissible to hope for something better. I should be very glad to hear of any similar cases in Australia. The whole case, apart from the result, is full of interesting points which are, I think, sufficiently obvious as to need no recapitulation.

COMPLETE SEPARATION OF THE FACIAL BONES FROM THE BASE OF THE SKULL.

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DURING the last few years it has fallen to my lot to treat four patients for severe injury to the face as the result of the patients being jammed in a lift. In three cases the soft tissues of one side of the face were completely stripped from the facial bones in one flap and laid on the neck, with fracture of the malar bone and in one of the hard palate and lower jaw. Immediate re-apposition produced excellent results.

However, the case I desire to report now was of unusual severity and the methods adopted had to be decided on at once.

J.S., a returned soldier, aged thirty-four years, was

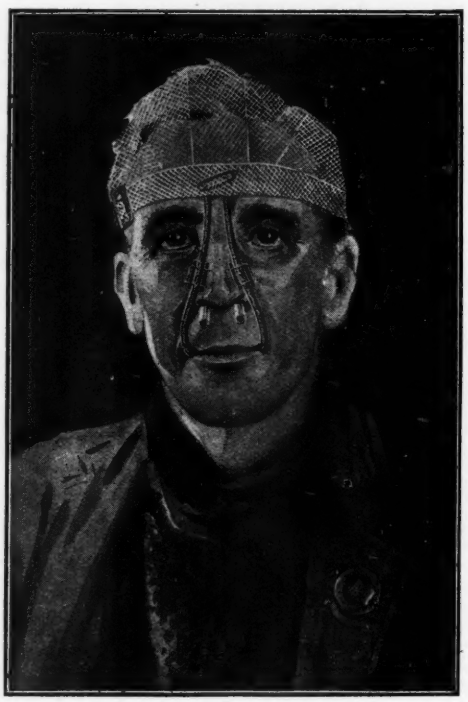

FIGURE I..
Showing the Apparatus, Tubes and Sutures Employed (semi-diagrammatic).

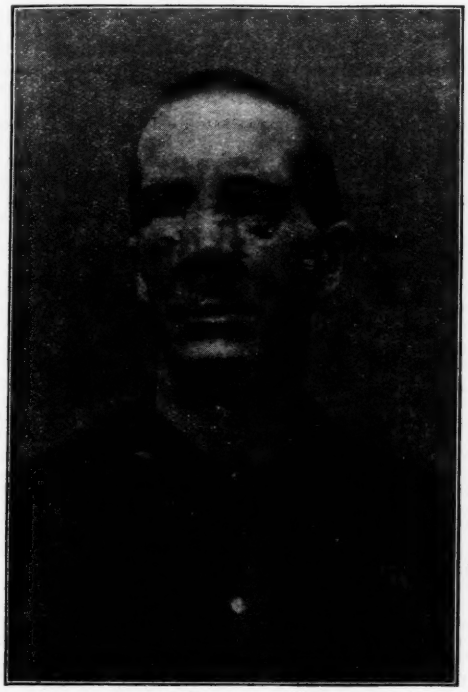

FIGURE II..
Condition at the Time of Discharge, One Month After Operation.

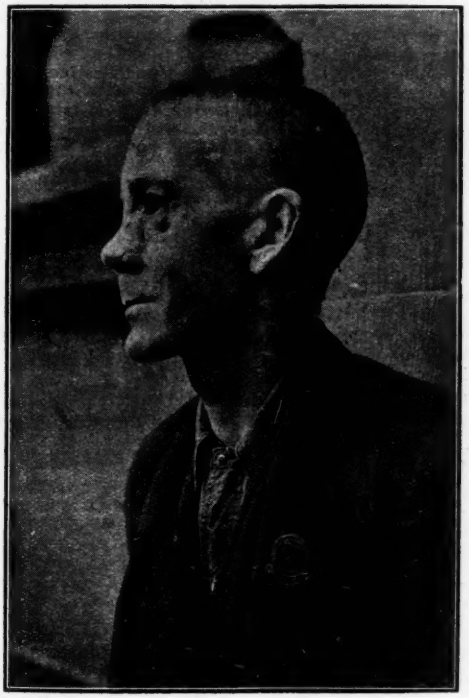

FIGURE III..
Condition at the Time of Discharge, One Month After Operation.

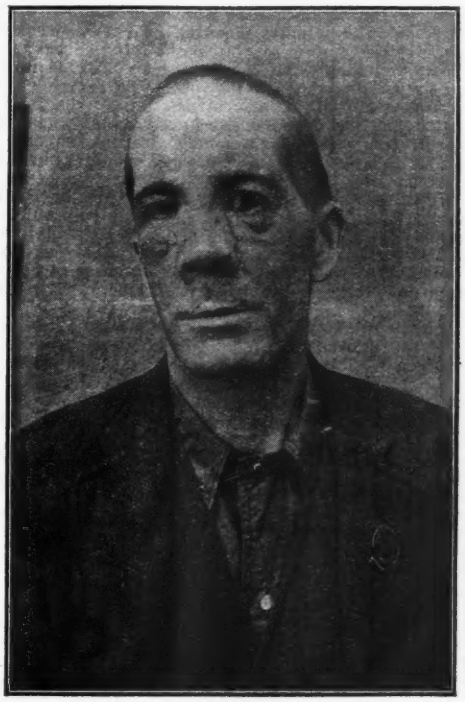

FIGURE IV..
Condition at the Time of Discharge, One Month After Operation.

FIGURE V..
Condition Six Months After Operation.

admitted to the Sydney Hospital on November 2, 1921. Whilst engaged in window cleaning near by a workman's lift, he strolled across to watch the proceedings of the lift. Whilst gazing with interest at the lift coming up, he was quite unaware of the other lift coming down. The result was that he was struck on the back of the head by the lift and his face was forced against the wooden guard rail composed of three-inch Oregon timber. The guard rail broke; otherwise he would have been decapitated.

On arrival at the hospital he was admitted by Dr. Cunningham. His face was shapeless, but he was quite conscious and it was noted that he had a compound fracture of the nose, nasal septum and vomer and air and blood were being forced out in the region of the base of the nose. He could not breathe when lying on his back. His eyelids were badly torn.

I saw the patient in the ward immediately after admission and found him with his head hanging over the side of the bed and violently resisting any attempt to alter his position. The reason was that when placed on his back he was unable to breathe, owing to the upper jaw falling back against his naso-pharynx and obstructing the airway completely.

Under chloroform anæsthesia I placed my fingers in his mouth behind the uvula and pulled the upper jaw forward. It was completely separated from the skull. Next a wide rubber tube was passed through each nostril so as to project beyond the uvula. This permitted him to breathe freely. The nasal bones were moulded into position and the lacerated skin was sewn up. The malar bones were then elevated. In order to bring the cartilaginous part of the nose out of its flattened condition a mattress suture of fishing gut was passed through rubber tubing beneath the tubes in the nose. This had the effect of pushing forward the cartilaginous portion of the nose. The next difficulty was to keep the upper jaw in apposition with the skull; the ordinary four-tailed jaw bandage would not do this. He fortunately had a molar tooth on either side of the upper jaw; the other teeth were absent. Accordingly a stout piece of silver wire was fixed around each tooth and threaded through rubber tubing. The two wires were brought together at the forehead and firmly fixed to a band placed round the head. Mosquito netting was placed over the head and beneath the band and then fixed on the top of the head. This prevented the band from slipping down. This apparatus held the upper jaw firmly in position.

Fourteen days after the accident the patient insisted on leaving the hospital temporarily to see that no one had "pinched his job" as he expressed it. I think I mentioned before that he was a "digger."

Dr. Ziele made a very good dental splint, but, unfortunately, the patient would not wear it. However, on discharge from the hospital the union was quite good. Later on I freed some of the scar tissue.

The photographs and diagrams explain the case well.

Dr. Edwards reported after an X-ray examination complete separation of the bones of the face from the base of the skull. The wires are holding the bones in position.

I am indebted to Dr. Cunningham for the administration of the anæsthetic, and to Sister Bridgeman for her great care of the patient after the operation.

Reviews.

DISEASES OF THE WAR.

The first volume of the section of the official history of the great war devoted to the "Medical Services" supplies us with an excellent account of twenty-three diseases. This is, of course, not surprising in view of the special qualifications of the various contributors and the vast store of accurate records at their disposal.[1]

We have read the five hundred and odd pages of the work with very lively satisfaction and much profit and feel no hesitation in advising our readers that the volume under review supplies the best guinea's worth of medical information that has been offered to them for a very long time.

Here in Australia, where the enteric group of diseases still claims far too large a number of victims each year, the article upon this subject, especially the portion devoted to the paratyphoid fevers, will be read with especial interest. Purulent bronchitis, which emerged in an entirely new aspect during the war as an acute and extremely fatal disease, often attacking those in the prime of life, is very well described. A careful study of the article will help to solve the diagnosis, which may be obscure. Occasionally this condition occurs in civilian practice in a form that leads to the assumption of pulmonary tuberculosis, in spite of the absence of tubercle bacilli from the sputum.

The incidence of pellagra on a large scale among the Turkish prisoners captured in Palestine and Syria afforded an exceptional opportunity for investigating the much-debated ætiology of this disease. The careful observations made by the medical officers in charge of these patients seem to have established beyond a reasonable doubt that pellagra is essentially a food deficiency disease and that it tends to occur among those in whose diet the biological value of the protein is low. This article will be of special interest to those who appreciate the importance of a knowledge of nutritional disorders to the present-day practitioner.

Other articles of especial interest include those on the dysenteries, malaria, influenza and the types of jaundice met with on the various fronts.

It requires some temerity to offer any criticism of so carefully compiled a work, but as many practitioners in Australia unskilled in the treatment of tropical disease are called upon to attend patients suffering from malaria, there is one point in the treatment of this disease to which reference must be made. Dr. Manson Bahr, in the course of his most instructive article on malaria, recommends the use of bihydrochloride of quinine for intramuscular injections in a dilution of six grammes to the cubic centimetre of distilled water. This was the strength of the solution contained in the ampoules supplied to the Army during the war, but Dr. Manson Bahr, as well as many other medical officers during the campaign in Palestine, recorded numerous cases of muscular sloughing when this dilution was employed. It is worth noting that, directly a dilution of one gramme to the cubic centimetre was adopted as the standard in the Australian hospitals, no further sloughing of muscle was recorded.

[1] "History of the Great War, Medical Services: Diseases of the War," edited by Major-General Sir W. G. Macpherson, K.C.M.G., C.B., LL.D., Major-General Sir W. P. Herringham, K.C.M.G., C.B., Colonel T. R. Elliott, C.B.E., D.S.O., and Lieutenant-Colonel A. Balfour, C.B., C.M.G.; Volume I.; 1921. London: His Majesty's Stationery Office; Demy 8vo., pp. viii. + 550, with six coloured plates. Price: 22s. net.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A Meeting of the Senate of the University of Sydney was held on February 19, 1923, at University Chambers, Phillip Street, Sydney.

The following appointments were made:

Lecturer in Veterinary Materia Medica and Veterinary Parasitology: Mr. H. R. Carne.

Chief Lecturer and Demonstrator in Physiology: Mr. F. S. Cotton, B.Sc..

Lecturer in Clinical Surgery at the Royal Prince Alfred Hospital: Dr. St. J. W. Dansey.

Lecturer in Clinical Medicine at the Royal Prince Alfred Hospital: Dr. E. W. Fairfax.

Tutor in Medicine at Sydney Hospital: Dr. G. C. Willcocks.

Demonstrator in Physiology: Dr. W. N. Horsfall.

Demonstrator in Zoology: Miss E. M. Thomas, B.Sc.

Demonstrator in Organic Chemistry: Mr. P. G. Carter.

On the recommendation of the Faculty of Veterinary Science, Mr. I. Clunies Ross was re-appointed to the Walter and Eliza Hall Veterinary Science Research Fellowship for the current year.

The Medical Journal of Australia

SATURDAY, MARCH 17, 1923.

The Medical Research Council.

THE MEDICAL RESEARCH COUNCIL has issued its report to the Committee of the Privy Council for Medical Research for the year ended September 30, 1922. This important annual publication serves a purpose that is larger and of greater value than its title would imply. The Medical Research Council has insinuated itself in some form or another into almost every medical research activity in the United Kingdom and as the Council does not suffer from excessive modesty, there is no hesitancy on the part of the draftsman of the report to claim as the work of the Council all the labours of investigators at other institutions to which the Medical Research Council has given some financial or other aid. Parliament again granted the sum of £130,000 for the purposes of medical research. It is regrettable that the Council does not give any indication of the distribution of this money. Attention has been directed in these columns to the ambition of the Council to control medical research in all parts of the United Kingdom on what is relatively but not actually a large sum of money. The National Institute for Medical Research at Hampstead, which is the central office of the Council, comprises six departments with twenty-one full-time members of the staff. The upkeep of this large institution, the cost of wages of attendants and other non-professional employees, the expenditure on equipment, animals, fodder, replacements and running of plant and other apparatus and the salaries of the scientific workers must absorb a considerable part of the allowance. In addition, the Council has twenty-nine working committees with a membership of over one hundred. These committees have been established for the purpose of conducting investigations of a costly nature. Two whole-time grants have been given to clinicians attached to the Cardiographic Department of the University College Hospital Medical School and part-time grants have been given to several workers in other hospitals. Reference is made in connexion with the researches conducted by those engaged by or working for the Council to no less than five hundred and sixty-six investigators. While some of these scientists have no direct connexion with the Medical Research Council, it would appear that the number of persons in receipt of some stipend or financial aid is very large indeed. Lastly, the grant-in-aid of Parliament covers the provisions for the work of the Industrial Fatigue Research Board. It would be of considerable practical importance to the medical profession in Australia to learn what whole-time and part-time salaries are paid and the amount of the financial assistance given to independent research institutions. Hitherto Australia has not been in the happy position of holding a large number of research workers.

During the year arrangements were made for the holding of periodic conferences between the Development Commission, the Medical Research Council and the Department of Scientific and Industrial Research. At these conferences one of the Secretaries of the Royal Society is invited to attend. The object of these conferences is primarily to determine the allocation of moneys voted by Parliament for scientific inquiry. The Council rendered assistance to the International Conference summoned by the Health Section of the League of Nations to consider the establishment of an international system of standards for estimating the therapeutic activity of sera and other substances used in medical practice that are susceptible of measurement only by indirect biological methods. It is pointed out that Great Britain alone among the great nations has no system of standards for this purpose and possesses no machinery for selecting or adopting any standard for any given substance. Workers in the United Kingdom use standards devised in the United States or in Germany. At the last conference it was agreed that the standards laid down by the representatives of the United States of America, of France and of Germany for the toxins and antitoxins of diphtheria and tetanus should be adopted by all nations.

In the report proper it is recorded that "a large body of work has been done by devoted workers in

many places. . . . In all this work there have been, as there must be in all honest investigation, many failures, abundant disappointment and occasional success." The public rarely recognizes that advance in knowledge is achieved at the cost of much patient endeavour, of the exercise of ingenuity and of hard work. The true scientist selects a subject for investigation and plans his experiments without any preconceived hypothesis which he might attempt to prove. He collects facts as they evolve under the conditions of his experiment and when a series of experiments is completed, he pauses to take count, to survey the field and to ascertain whether something that was not known before, has transpired or become apparent from the result of his work. The year's yield, even when many hundred workers have been labouring, is necessarily small, but every tiny advance along the road is of the utmost importance.

Research workers will make it their business to study this report, in order that they may be aware of the work that has been carried out in the branches of science in which they are particularly interested. A detailed account of the work has less value to the ordinary medical practitioner, although, no doubt, he would find interest in the majority of the chapters. No attempt can be made to discuss the report in an exhaustive manner in this place. The object of this article is to indicate in general terms some of the problems that have been the subject of special investigation during the year and to awaken interest in those that appear to demand further research.

Some highly interesting work has been carried out by Mr. J. E. Barnard, the well-known expert on the physics of the microscope, and Dr. S. R. Douglas, F.R.S., on the structure and measurements of bacteria. These researches include the study of living bacteria as well as stained and unstained dead bacteria. Hitherto the biology of bacteria has been investigated almost exclusively under artificial conditions. Ehrlich sought to examine the chemistry of the component parts of the bacterial cell, but very few attempts have been made to correlate the biology of these low organisms with structure and chemical qualities. If we knew more of the real nature of bacteria and the manner of their life and death, less uncertainty would exist in regard to the part they play in the causation of disease.

Dr. Douglas is also engaged in an investigation into the cultural and other characteristics of the human and the rat types of leprosy bacilli. It is reported that he has not yet succeeded in cultivating these bacilli side by side under the stimulating influence of ferments. So little is known concerning the life history of the bacillus of Hansen and its reactions with the living tissues of its host, that any fresh channel of information should be followed with care.

Some ingenious research on coordinated lines has been devised by Dr. Leonard Hill, F.R.S., on the metabolism of children suffering from surgical tuberculosis and on the effect of sunlight, of open air and of certain balneo-therapeutic measures on these chemical exchanges in the tissues. It is significant that this work has been carried into Switzerland by Dr. Hill and that observers at several sanatoria in England have also been stimulated to join in the research. It has been found that the increased metabolic activity induced by the effect of light rays is insigficant when compared with that induced by exposure to open air. The value of sunlight as a healing agent in surgical tuberculosis is undoubted, but apparently the exposure of children with tuberculous disease of bones and joints in a nude state to pure, fresh air results in a greatly accelerated metabolic activity and consequently the prospects are much enhanced by this therapeutic measure.

In the department of biological standards a good beginning has been made. The production of standard cultures of the enterica group and of the dysentery bacilli, together with standardized agglutinating sera for each of fourteen varieties, has been found to be of practical value. Large numbers of cultures and of samples of serum have been issued to bacteriologists in many countries.

Problems connected with child life claim a special chapter of the report. In the first place, reference is made to the work of Drs. J. W. Ballantyne, J. S. Fairbairn and Eardley Holland on the factors contributing to still births and premature births. Other work is also being conducted on the pathology of still-birth at the Royal Maternity Hospital, Edin-

burgh. Some of this work has been the subject of articles published in the medical journals, but a special report on these investigations is foreshadowed. So little information is given in the report that it would be inadvisable to anticipate the value of the information that may emanate from the investigations already carried out by the workers named. That the subject is of the greatest importance will not be denied. Much study is required before measures for the control of the wastage of infant life can be applied with prospects of success. It is hoped that the report will register some advance in the right direction.

In connexion with post-natal problems, the Scottish Child Life Committee has continued to analyse the influence of social, dietetic and other factors on nutrition and growth. Miss Jean Agnew has already published some interesting data, as has Miss M. R. Gribbon.

It is unnecessary to refer specifically to the work conducted on the ætiology of rickets and on the nature of the anti-rhachitic accessory food factor. These subjects have been discussed at length in recent issues of this journal.

Very many other subjects are dealt with in the report, all of which are of importance and several of national significance. Each one deserves special mention, but it is impossible in the space available even to enumerate them. It is hoped at some future date to discuss some of them, when fuller information becomes available.

Brief mention must be made of the section devoted to the subject of industrial fatigue and industrial hygiene. Mr. Hartley Lupton has embarked on a promising research into the effects of heavy muscular exercise, based on measurements of the rates of oxidative recovery after work. This investigation has already produced some information of value. Similarly Dr. H. M. Vernon has carried out some sound work on the influence of rest pauses and changes of posture on the capacity for muscular work. This kind of work is calculated to throw fresh light on problems in industrial hygiene which must be taken into account by practitioners specializing in this branch of medical practice.

These scanty details should suffice to indicate the wide application and the varied importance of special investigation into the nature of disease and into the bio-chemistry and bio-physics of human activities. Without research, science must fail to progress. The studies are made not only in the laboratory. Much observation in the home, in the workshop and in the field is necessary before the problems of preventive medicine can be solved. In one year in Britain there are many sowers and the harvest is worth the reaping.

Current Comment.

CRANIAL STRESS IN THE FŒTUS DURING LABOUR.

In the practice of obstetrics the care of the medical attendant is mainly directed, and rightly so, to the welfare of the mother. If, as sometimes happens, a choice has to be made between two courses of action which are accompanied by greater risk on the one hand to the mother and on the other hand to the fœtus, the general custom is to adopt the latter rather than the former course. With the modern aids to clinical work, not only in the obstetric ward, but in the ante-natal clinic, maternal mortality has been reduced to comparatively small dimensions. The fœtal mortality and that of infants soon after birth is still appallingly high. The causes for this are hard to determine with any degree of accuracy. They are many and varied and of both maternal and fœtal origin. Fœtal intracranial injury is a condition of importance and one that unfortunately is all too common. That the fœtal head should be subjected to certain stresses is in the nature of things unavoidable and it can be readily understood that damage to the intracranial contents will result if such stress becomes excessive.

The effect of cranial stress on the fœtus during labour and the effects of excessive stresses on the intra-cranial contents have been studied by Dr. Eardley Holland.[1] During an investigation into the causation of fœtal death, Dr. Holland found that the *tentorium cerebelli* had been torn in eighty-one or 48% of one hundred and sixty-seven fresh fœtus. In five instances there was an associated tearing of the *falx cerebri* and in all but six subdural cerebral hæmorrhage was present. Dr. Holland points out that the stress to which the fœtal head is subjected during its passage through the maternal passages, consists of a general compression of the whole head and of a simple longitudinal compression by opposite forces acting at the ends of the long diameter of engagement of the head in the pelvis. This longitudinal stress may be either antero-posterior, as in vertex or breach presentations, or vertical, as in brow or face presentations. The stresses and their effects vary with the absolute

[1] *The Journal of Obstetrics and Gynæcology of the British Empire*, Winter Number, 1922.

amount of the forces acting, with their direction, with the plasticity of the head and whether the forces attain their effect suddenly or gradually. The intensity of cranial stress can only be estimated by its after effect. Stress is excessive when it produces excessive moulding. This, as Dr. Holland shows, is often accompanied by tearing of the *tentorium cerebelli* or *falx cerebri*. These lesions, however, have been found by him in the *post mortem* examination of fœtus after apparently normal births. The effect of stress is strain and in the cranial conditions under discussion this may, as in all varieties of strain, be divided into slides or shearing strains and stretches. The moulding of a fœtal head is an example of slide and when this becomes so excessive that the septa of *dura mater* are torn, it must be regarded as a stretch. The nature of the walls of the fœtal cranium and its contents have much to do with the behaviour of the head under stress. The degree of ossification is an important factor, but equally important are the attachment of the septa of *dura mater* to the cranial bones and the connexion of certain blood vessels with these septa. Dr. Holland attaches importance to the fact that the septa of *dura mater* act as controlling ligaments specially arranged to limit the movement of bones forming the cranial vault and to resist a dangerous degree of alteration in the shape of the head. Four sheets or septa are concerned, the *falx cerebri*, the two halves of the *tentorium cerebelli* and the *falx cerebelli*. These are strengthened in various areas by aggregations of fibrous bands. The bands are situated in parts of the septa which have to bear the most stress. Over-stretching of the septal ligaments results in tearing and tearing may cause rupture of blood vessels passing into the septa. This applies particularly to the vein of Galen and its tributaries. The site of the tear in the septa depends on the direction of the compressing force as applied to the head. Dr. Holland observed the mechanism of the production of tentorial tears by reflecting the scalp from the head of a fœtus and removing part of the parietal bone. One cerebral hemisphere could then be removed and the results of pressure in various diameters demonstrated. Of the eighty-one fœtus in whose crania tears were found, sixty-four showed bilateral and seventeen unilateral tears. Although severe hæmorrhage accompanied a higher proportion of bilateral complete tears, no constant relation was found to exist between the extent of the tear and the amount of hæmorrhage. The hæmorrhage was found not to originate from the tear itself. It was sometimes difficult to determine its exact situation. Dr. Holland formed the conclusion that in the majority of instances the hæmorrhages originated in the tributaries which the vein of Galen receives from the cerebellum and mid-brain, and in the veins which pass from the cerebellum directly into the straight sinus. In two instances only did he find rupture of the vein of Galen. Of the eighty-one fœtus in whom tears were found, head delivery had occurred in forty-six and breech delivery in thirty-five instances. Of the forty-six head-first deliveries, forty-four were vertex presentations, one was a face presentation in which labour ended naturally and the remaining one was characterized by a brow presentation in which forceps had to be applied. Of the forty-four instances in which the vertex presented, instrumental delivery had been necessary in twenty-five. Dr. Holland finds it difficult to give a reasonable explanation for the torn tentorium in many cases of natural vertex delivery. He expresses the opinion that over-zealous "guarding" of the perineum from rupture may be the explanation in some instances. Breech delivery had occurred in forty-seven of the one hundred and sixty-seven fresh fœtus examined. In thirty-five of these (75%) the tentorium was torn. This high percentage is explained by the fact that the after-coming head is rapidly, though momentarily, compressed in a diameter that throws greatest strain on the *tentorium cerebelli*. Of the actual cause of death in these fœtus, Dr. Holland finds it difficult to speak with much accuracy. He failed to find evidence of general increase in intra-cranial pressure apart from the tearing of the septa and the hæmorrhages. He suggests that increased pressure may result in the crowding-down of the medulla with its so-called vital centres into the *foramen magnum*. A tentorial tear unaccompanied by hæmorrhage would not be a fatal injury and a small hæmorrhage would not necessarily be so.

This work of Dr. Holland's throws light on a cause of fœtal death that is not often recognized as such. In spite of the fact that tentorial injuries can occur in labours which are otherwise apparently normal, there is cause to consider the question of the use of forceps. Dr. Holland states that, when the forceps are applied merely for the relief of a prolonged second stage, the production of sufficient stress to produce a tentorial tear means either that the force exerted by the forceps was excessive or was applied to the wrong diameter of the head. Neither of these should occur if the *os uteri* is fully dilated and if care has been taken to determine the position of the occiput.

Much has been written lately in the pages of this journal about the use of forceps. At a recent discussion one speaker went so far as to express a wish for the total abolition of midwifery forceps. The ardent surgeon will see in Dr. Holland's work another indication for the performance of Cæsarean section. The lesson to be learned is probably the necessity of more adequate examination before labour starts (particularly in regard to the estimation of the true conjugate), the avoidance of all hurry and the use of forceps only when definite indications are present. The use of extract of the pituitary gland calls for the same watchfulness and care.

THE EFFECT OF THE ADMINISTRATION OF HYPERTONIC SALT SOLUTION.

IN 1884 Brasol and in 1886 Kilkowitz observed that hydræmia was occasioned in animals by the administration of hypertonic salt solution. Magnus in 1900 demonstrated this hydræmia and found that

the increase in chlorides in the blood after injection was apparently less than the chlorides introduced. Weed and McKibben in 1919 showed that the intravenous injection of hypertonic salt solution in animals produced a decrease in the size of the brain and a fall in the pressure of the cerebro-spinal fluid. Hypertonic salt solution was first used intravenously in the treatment of patients in 1909 by Van der Velden. He found that it was of use in dealing with hæmorrhage in that the coagulation time was reduced. Cushing and Foley in 1920 were among the first to apply the work of Weed and McKibben to patients. The dose used by them was one hundred cubic centimetres of a 15% solution of sodium chloride. It was a common experience as a result of the treatment that cerebral herniæ were reduced in size and often completely disappeared. Operative procedures were in this manner made easier to perform.

Dr. Alvan L. Barach, Dr. William Mason and Dr. Basil P. Jones have recently endeavoured to determine the nature of these changes occasioned in the blood, together with their degree and significance.[1] They made a series of observations after the intravenous administration of hypertonic salt solution to seven patients, after the oral administration to one patient and one normal person and after the administration by both methods to eight rabbits. The intravenous human dosage was one hundred cubic centimetres of a 15% solution of sodium chloride. Animals were given a corresponding or somewhat larger dose. The most striking result was an immediate and definite rise in volume of the blood plasma. Calculated by the vital red method of Keith, Rowntree and Geraghty, injection was followed in one or two minutes by an elevation of from 15% to 30% of the total volume, representing an addition to the blood stream of from 500 to 1,200 cubic centimetres of tissue fluid. The greatest increase was noticed thirty seconds after injeciton. This gradually diminished and, as a rule, reached its original level within three and a half hours. In one instance in which the blood volume was abnormally low before injection, the increased volume persisted for four days. The increase in blood volume was almost entirely due to increase in the volume of the blood plasma. The extent of the changes and their permanency or otherwise are dependent on the total increase in chlorides present and on the condition of the kidneys. This was shown by the estimation of the entire chloride content of the blood both before and after injection. The chloride concentration in the red corpuscles and the chloride content of the entire red blood cells show no constant relation to the blood volume. It appeared, however, that the increase in total chlorides of either the blood or the plasma is proportional to the volume increase in either blood or plasma. The blood volume and the blood chlorides may be compared more accurately by calculating the number of cubic centimetres of water theoretically necessary to bring the increased amount of chlorides in the blood to an isotonic state. This is known as the isotonic equivalent. If this number be compared to the actual increase in blood volume, the two figures generally approximate one another. When they are not equal, the blood may appear to be slightly hypertonic. This is not due to hypertonicity, but represents the deficiency caused by the dilution of other osmotic substances with tissue fluids. The amount of increase in the blood volume corresponds approximately to the amount of fluid necessary to render the increased chlorides in the blood isotonic. The condition of the kidneys is important from the point of view of permanency of the increase in volume. Dr. Barach, Mason and Jones refer to the work of others on this point. In the patients they treated, no urinary examinations were possible, because they suffered from incontinence. No alterations were found in the red blood corpuscles as a result of the injection of hypertonic saline solution. In one instance there was a temporary lessening of fragility. Hæmolysis occurred in one instance in which Ringer's solution was used. This was attributed to the excess of potassium present.

In addition to this portion of their investigation, Drs. Barach, Mason and Jones noted temporary symptomatic improvement in six patients with cerebral tumour. Headache and stupor were generally relieved. No harmful effects were produced.

This work has a definite clinical bearing. The relief in symptoms is probably due to a change in volume of the brain consequent on the removal of fluid by osmosis from the tissues to the blood stream. Hypertonic saline solution has been used in other conditions. Rogers advocated its use in cholera and claimed to have obtained successful results.

Dr. Charles E. Dowman has recently discussed the use of hypertonic saline solution in the treatment of patients suffering from head injury.[1] He refers particularly to his treatment of patients with fracture and possibly brain injury who had also symptoms of increased intra-cranial pressure. When any signs of increased pressure were manifested, a saturated solution of magnesium sulphate was given. If this did not yield the required result, a quantity of 30% hypertonic saline solution was given intravenously. Dr. Dowman does not say how many patients he treated in this manner in his series, nor does he state what quantity of saline solution he gave as a routine. In one patient's history, reported at length, however, he states that he gave fifty cubic centimetres and a further thirty cubic centimetres every six hours for thirty-six hours. He states that in no instance was operative drainage necessary and that all the patients got well after an uneventful illness. Although Dr. Dowman speaks somewhat indefinitely and in general terms, yet in view of the work of Drs. Barach, Mason and Jones the subject merits serious consideration and deals with a form of treatment which, while generally of a palliative nature, may in traumatic conditions be curative.

[1] *Archives of Internal Medicine*, November 15, 1922.

[1] *The Journal of the American Medical Association*, December 30, 1922.

Abstracts from Current Medical Literature.

PHYSIOLOGY.

Gastric Hormone.

SINCE Edkins described experiments suggesting that the pyloric portion of the stomach secretes a hormone which stimulates the secretion of gastric juice, a considerable number of experiments has been carried out by different workers and very diverse views have been published. R. K. S. LIM (*Quarterly Journal of Experimental Physiology*, September, 1922) has reinvestigated the problem by new methods. While most of the results obtained by previous observers show that an extract prepared from the pyloric gastric mucous membrane, when injected into the blood stream, would invoke the secretion of gastric juice containing both pepsin and hydrochloric acid, it is evident that further evidence of a different character is necessary before it can be definitely asserted that this substance is a hormone normally secreted into the blood. It is necessary to show that the exciting substance appears in the gastric venous blood after the introduction of secretogogues into the stomach and that such blood is capable of secretion in the stomach of an unfed animal. This crucial test has been successfully applied in the case of pancreatic secretion. The author first confirmed the earlier experiments that extracts of the mucous membrane of the stomach were potent in inducing gastric secretion. Pyloric extracts almost invariably produced the standard effect, cardiac and duodenal extracts sometimes and extracts from the small intestine never. "Histamine" injected intravenously is also able to excite gastric secretion. It seems likely that the pyloric principle or gastrin is a body closely allied to "Histamine." It cannot be concluded either from previous or present observations that the gastric excitant in the successful extracts is performed in the mucous membrane. In another series of experiments blood from animals during gastric digestion was transfused or injected into fasting animals. In only two experiments did fluid collected from these animals contain pepsin and in neither of these was there any free hydrochloric acid. In both of these instances the transfusion of blood took place shortly after an effective injection of pyloric extract and the presence of the ferment may properly be attributed to the residual secretion remaining after the earlier injections. The conclusion seems inevitable that there is no gastric exciting substance in the circulation after meals and consequently "gastrin" secretion. The whole question of gastric secretagogue secretion must be regarded as unsolved.

Renal Function and Vital Dye-Stuffs.

J. DE HAAN (*Journal of Physiology*, October, 1922) has studied the excretion of a number of so-called vital dye-stuffs in relation to the theories of kidney secretion. According to the hypothesis of Cushny, the glomerulus is practically impermeable to colloids. Many of these dyes are colloidal in nature and others are entirely attached to plasma proteins by adsorption, so that on the view held by Cushny the glomerulus filtrate can contain dye-stuff only at a very low concentration, greatly inferior to that in the plasma. At the most it can only be present at the concentration of that part of the dye which is not adsorbed in the plasma of the blood. The author has determined the concentrations of the dyes in the plasma and in the urine, as well as the relative concentrations of urea in the two fluids. If, as Cushny assumes, no urea is re-absorbed from the glomerular filtrate in the tubules, impossibly high inspissations of the glomerular filtrate must be assumed with many of the dye substances. With phenol red, for example, the protein-free filtrate would have to be inspissated about 8,000 times in order to equal the concentration of the dye in the urine of the rabbit. If the fundamental idea is rejected that the glomerular filtrate is free from colloids and the assumption is made that the membrane does let through these substances, many of the difficulties disappear. If it is assumed that the glomerular membrane passes all bound dye-stuffs, a concentration of 50 to 120 would have to take place, an inspissation falling within the limits of possibility. But this inspissation is still much greater than that which would have to be assumed on the ground of the urea concentration simultaneously determined. From this it follows that a large part of the urea contained in the glomerulus filtrate must be reabsorbed again by the tubules. Cushny's hypothesis must then be modified in the following way: The glomerulus is permeable to a fluid which contains a considerable part of the plasma colloids besides the crystalloids. In its further course this primary, diluted plasma loses a great part of its constituents by re-absorption in the tubules. This re-absorbed fluid contains not only the constituents of Locke's fluid, but also a variable part of those substances which, according to Cushny, leave the body completely, for example, urea. Re-absorption of substances not normally present in the blood plasma is so slight that they are completely excreted. On this assumption the supposition that foreign proteins only pass through the glomerulus because it is injured, is unnecessary.

Influence of Fluid Intake and Exercise on Plasma and Hæmoglobin Volumes.

F. W. LEE, E. B. CARRIER AND G. H. WHIPPLE (*American Journal of Physiology*, June, 1922) have investigated the influence of the taking of fluids by mouth and of vigorous exercise on the plasma and hæmoglobin volumes. They use a dye method for determining the plasma volume and a carbon monoxide method for determining the hæmoglobin volume. They have shown that the dog tends to maintain a uniform total blood volume so that a very short time after hæmorrhage the plasma increases to make up the blood volume to its previous level. Liberal water intake by the stomach increases distinctly the plasma volume, while concentrated sugar solution has the reverse effect. After copious water ingestion in dogs there was an average increase of 16% in the total blood plasma volume. This increase in plasma volume may be in part responsible for the great secretory activity of the kidney, but there are many other factors which must be weighed in an analysis of this problem. In the case of the experiments with sugar solutions the diffusion of the sugar solution in the body is evidently sufficiently rapid to prevent any disturbance in the equilibrium of the fluids in the blood plasma. Vigorous exercise for periods of ten to thirty minutes did not modify the blood plasma volume in a convincing degree. The average decrease in plasma volume was 3%, but the authors say that they can place no emphasis on such a decrease. In some of the experiments there was an actual increase in the plasma volume after exercise.

Bile Salts and Hæmolysis in the Blood Stream.

ERIC PONDER (*The British Journal of Experimental Pathology*, December, 1921) has investigated the fate and the hæmolytic effects of bile salts in the blood. The normal amount of bile acids produced in man is about ten grammes *per diem*, yet only traces of bile salts are found in normal urine. In the first few days of an attack of jaundice there is evidence that an increased quantity of these substances is absorbed into the blood and excreted in the urine; but afterwards the amount excreted becomes diminished, since bile is excluded from the intestine and therefore not absorbed. On the other hand, it is stated that in jaundice an increased amount of bile salts enters the blood and thus produces increased biliary secretion, a vicious circle being established. Since during the first few days at any rate bile salts are absorbed into the blood in increased amounts, it may be asked why is there not hæmoglobinuria and why is so little bile salt excreted in the urine. Hæmoglobinuria is not a symptom of jaundice. The author shows that, contrary to the usual opinion, bile salts do not exercise their hæmolytic action in the presence of blood serum. The inhibitory action of blood serum is very great. The presence of 0.1 cubic centimetre of serum lengthens the time required for the hæmolysis of one cubic centimetre of a 5% suspension of thrice washed human erythrocytes by a 1 in 1,000 solution of sodium taurocholate from half a minute to seven minutes at 37° C.. Similar results were obtained with sodium glycocholate. Since these salts do not attain, even in intense jaundice, a concentration of 1 in 1,000 or anything approaching it and since the amount of blood serum is proportionately much greater, it may be con-

cluded that bile salts exert no hæmolytic action in the blood stream. It is not probable that the bile salts form adsorption compounds with the serum proteins, for this occurs only in the presence of acids. Sodium taurocholate and sodium glycocholate have the properties of colloids and this, doubtless, explains why they are excreted in such traces only. In the urine it would be expected that, as the reaction is acid, they would be adsorbed by any albumins present and this is actually the case.

BIOLOGICAL CHEMISTY.

Experimental Rickets.

G. F. McCANN AND M. BARNETT (*Journal of Biological Chemistry*, October, 1922) have investigated the distribution of phosphorus and calcium in the skeleton and soft parts of rats fed on diets which produce rickets and of rats fed on a sufficient ration. It has already been noted that rats fed on different diets poor in phosphorus, but rich in calcium, develope rickets and that the addition of food containing phosphorus to these diets until the figure for combined phosphorus passed a certain level invariably prevented the onset of this disease. Treatment with cod liver oil or exposure to light likewise prevented the development of rickets in the absence of any addition of food containing phosphorus. The authors have endeavoured to ascertain the distribution of phosphorus and calcium in the bones and soft tissues in rats fed on diets extremely poor in phosphorus or in calcium. They sought to find whether the amount available was shared between the bones and soft tissues or whether one or other would suffer a greater deprivation. The results have shown that the amounts of phosphorus and calcium per hundred grammes of body weight in the ash of rats which have developed rickets, is less than in normal animals. This difference becomes greater the better the animals have grown on the diet inducing rickets. The percentages of phosphorus and calcium in the ashes of rhachitic and healthy bones have been practically identical. The amount of total ash in the rhachitic bones has been reduced, but the ratio of phosphorus to calcium in the ash has remained the same as in the ash of healthy bones. The results have been similar whether rickets has been produced by a diet poor in phosphorus, but rich in calcium, or by a ration poor in calcium, but rich in phosphorus. The authors have studied the effect of the use of cod liver oil and of exposure to sunlight, which prevent the onset of rickets in connexion with a ration poor in phosphorus, but rich in calcium. They have found that the amount of phosphorus and calcium per hundred grammes of body weight remains at the normal level. Examination of the figures shows that the phosphorus and calcium is distributed between the bones and the soft tissues in the same ratio as in healthy animals. There is a slight indication from the results that there is a greater use of phosphorus by the entire body in the animals to which cod liver oil has been administered, but the number of experiments is too limited to draw a conclusion from the small increase of phosphorus in the bones and in the whole body. As the anatomical pictures of the two types of rickets (deficiency of lime and deficiency of phosphorus) are so distinct, it is of interest to note that chemically the change in mineral content is identical. This would indicate that phosphorus and lime are not laid down separately in the bones.

E. V. McCOLLUM, N. SIMMONDS, J. E. BECKER AND P. G. SHIPLEY (*Journal of Biological Chemistry*, October, 1922) have studied the production of rickets in rats by feeding on diets consisting essentially of purified food substances. They point out that the diets employed for the study of the ætiology of rickets in England and America have consisted wholly or in great part of natural food-stuffs. Since the individual foods used in these studies have been tested in such a way as to reveal in great measure their specific dietary properties, it seemed possible to draw satisfactory inferences as to the nature of the deficiency of these diets and to recognize the ætiological factors leading to the production of rickets. Critical students have, however, been aware of the possibility of error brought about by relying entirely on the evidence of tests of this character. As an example, the authors refer to their discovery of a distinct nutritive principle which has been hitherto confused with vitamin A. They contend that such a discovery tends to discourage the acceptance of present interpretations as final in accounting for malnutrition of specific types. In their studies of rickets the authors have tried to avoid mistakes by using diets with like characteristics derived from widely different natural foods and supplementing these foods with isolated food substances. They were of opinion that they were justified in drawing conclusions about the relations of the faults in the foods to the structure of the bones if the same histological alterations were produced in the bones in all cases by experimental diets. The authors have now checked their conclusions by the use of two rations consisting essentially of purified food substances. These experiments were performed under hygienic conditions in respect to temperature, cleanliness, ventilation, opportunity for exercise and absence of direct sunlight. The rations consisted of wheat germ extracted with ether and chloroform, purified gluten, gelatine, agar and a salt mixture, together with dextrin, chalk and butter fat. In another series casein was added to the ration. Animals fed on both diets showed signs of rickets at autopsy. On examination of sections of the bones, over-growth of the cartilage and the absence of the provisional zone of calcification gave rise to the characteristic appearance of rhachitic bones. The disc of cartilage was invaded by blood vessels, so that the epiphyseo-diaphyseal line became irregular. The metaphysis was rhachitic and there was over-production of osteoid tissue without signs of abnormal activity in resorption. The rats restricted to these diets developed xerophthalmia, notwithstanding the presence of sufficient fat-soluble A to cover the minimal nutritive needs of the rat. The authors have described this condition previously as "salt ophthalmia."

Yeast as a Source of Vitamin B.

C. KENNEDY AND L. S. PALMER (*Journal of Biological Chemistry*, October, 1922) raise doubts as to the value of yeast as a source of water-soluble vitamin. In an endeavour to obtain vitamin B in a purified form they selected yeast as likely to be more easily prepared for use than extract of wheaten embryo. The early investigations into yeast seemed to indicate that yeast was a potent source for this vitamin. To their surprise the authors found that yeast is by no means rich in vitamin B. An examination of the early literature showed that the experiments that had been performed, were nothing like so conclusive as the inferences which had been drawn from them. Experiments were undertaken to ascertain the minimal amount of yeast that would suffice for rats as the sole supply of vitamin B. Two methods were used in these experiments. The yeast was mixed with the ration or fed separately to the rats. The latter method was found to give much more effect upon growth. Although some groups of rats attained normal growth, reproduction was lessened and in no case were the young rats reared. The authors tested yeasts from several sources, but failed to find a yeast satisfactory for supplying vitamin B.

M. B. MACDONALD (*Journal of Biological Chemistry*, October, 1922) has grown yeast in solutions of purified salts and sugar and in worts containing extracts of rye, malt, peptone and molasses and has fed the yeast to rats with the object of ascertaining whether yeast grown on purified nutrients contained as much vitamin B as that grown on more complex material. The purified nutrient solution contained cane sugar, potassium phosphate, ammonium sulphate, calcium cholride and magnesium sulphate. In the other worts molasses was substituted for cane sugar, or a little peptone added, or an extract of rye and malt added to the purified solution. The rats which weighed about sixty grammes, were placed on a basal diet lacking in vitamin B until they declined in weight. The ration then received 5% of air-dried yeast in place of 5% of dextrin. In every case the rate of growth greatly increased. As the tests were of no great duration, the author lays no stress on the relative amount of vitamin B in the yeast, but points out that the rate seemed similar in all the tests. She concludes that the synthesis of vitamin B occurs in yeast grown in a solution of purified nutrient substances

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, on February 2, 1923, the President, DR. D. A. CAMERON, in the chair.

Pneumococcal Pericarditis.

DR. S. F. MCDONALD presented a patient who had been suffering from pneumococcal pericarditis (see page 291).

History of the Brisbane Hospital.

DR. E. SANDFORD JACKSON read a paper entitled "Historical Notes from the Record of the Brisbane Hospital (see page 281).

Among those who took part in the subsequent discussion, which was mainly reminiscent in character, were DR. W. F. TAYLOR, DR. J. LOCKHART GIBSON, DR. W. N. ROBERTSON, DR. J. B. MCLEAN and DR. J. A. CAMERON.

THE PRESIDENT, in thanking Dr. Jackson for his interesting paper, expressed the desire of the members that he would continue the subject at a later date.

MEDICO-POLITICAL.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, on February 2, 1923, the President, DR. D. A. CAMERON, in the chair.

Appointment of Four Additional Members of the Council.

It was announced that, in accordance with the motion passed at the annual meeting, a ballot of the members of the Council had been taken and that the following had been elected members: DR. A. T. H. NISBET, DR. EUSTACE RUSSELL, DR. S. F. MCDONALD and DR. E. S. MEYERS. Dr. Russell had informed the Council that he could not see his way to accept the position. DR. E. CULPIN had been elected in his place.

Maternity Wards.

THE COUNCIL OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION recently considered the question of maternity wards and issued the following report:

1. The Council approves of the preamble to the Federal Committee's report on the subject (*vide* THE MEDICAL JOURNAL OF AUSTRALIA, July 29, 1922):

> That, in view of the national importance of securing a reduction in maternal mortality and morbidity and in infantile mortality, the Federal Committee urges on the Commonwealth Government that the money now devoted to the maternity bonus could be more effectively expended along the following lines:
>
> The extension of maternity hospitals . . .

2. The Council can see no objection to the accommodation of maternity patients in wards in conjunction with or part of a general hospital, provided that the wards are used only for maternity cases and that arrangements are made for the isolation of septic and infectious cases.

3. The Council is of the opinion that medical practitioners are fully protected in regard to private patients by the report given to the Brisbane daily press by the Home Secretary. In the course of this report it is stated: "The Committee will also be permitted the same discretion that it has, to make its own arrangements with the medical officer and no objection or exception will be taken to the medical officer admitting private patients, provided the Committee is properly safeguarded and that private patients do not exclude patients for whom the hospital is required. This applies to country places more particularly."

4. Arrangements regarding the nursing and administration of these wards are a matter for the hospital committees. The Council cannot interfere, but recognizes the difficulties of the country hospitals in these matters.

NOTICES.

THE COUNCIL OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION has arranged the following provisional programme of the Branch meetings. The Scientific Committee reserves to itself the right to modify the arrangements, but it is hoped that no changes will be necessary.

April 11, 1923.

CLINICAL MEETING at the Children's Hospital, Carlton, at 8.15 p.m..

May 2, 1923.

At the Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne Hospital, at 8.15 p.m..

DR. KEITH FAIRLEY: "The Relation of Leucocytes to the Bone Marrow."

LIST OF MEMBERS OF THE VICTORIAN BRANCH.

THE SECRETARY OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION has directed our attention to the fact that, owing to their transference from other States, the following names have been omitted from the list of members of the Branch published in the Supplement to THE MEDICAL JOURNAL OF AUSTRALIA of February 10, 1923:

BURNS, F. J., 55, Collins Street, Melbourne.

✕ FIELD, E., 685, Glenhuntly Road, Caulfield.

TELFORD, R. W., State Health Department, Melbourne.

NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected as members of the New South Wales Branch of the British Medical Association:

BENDEICH, JOSEPH HENRY, M.B., Mast. Surg., 1921 (Univ. Sydney), Railway Street, Wentworthville.

HARPER, HAMILTON SIDNEY, M.B., Ch.M., 1922 (Univ. Sydney), Mendooran.

HINDMARSH, BERNARD FRANCIS, M.B., Ch.M., 1922 (Univ. Sydney), Saint Vincent's Hospital, Sydney.

MASON, JOHN WHARTON, M.B., Ch.B., 1921 (Univ. Edinburgh), Tumut.

STANLEY, PERCIVAL HUBERT, M.B., Mast. Surg., 1921 (Univ. Sydney), Royal Alexandra Hospital for Children, Camperdown.

STEPHENS, HUGH SEVERIN, M.B., Ch.M., 1922 (Univ. Sydney), Royal Prince Alfred Hospital, Camperdown.

THE undermentioned have been elected as members of the Victorian Branch of the British Medical Association:

NIALL, JOHN HENRY, M.B., B.S., 1922 (Univ. Melbourne), Sandringham.

SWEETNAM, REGINALD INNES, M.B., B.S., 1922 (Univ. Melbourne), Melbourne Hospital.

Medical Societies.

BRISBANE HOSPITAL CLINICAL SOCIETY.

A MEETING OF THE BRISBANE HOSPITAL CLINICAL SOCIETY was held at the Brisbane Hospital on February 8, 1923, the President, DR. EUSTACE RUSSELL, in the chair.

Sternberg's Disease.

DR. EUSTACE RUSSELL reported progress of a patient thought to be suffering from Sternberg's disease, notes of which had been read at a previous meeting.

Lymph-Adenoma.

DR. EUSTACE RUSSELL reported progress of a patient shown at a previous meeting as suffering from Pel-Epstein type of lymph-adenoma. This patient had died. At *post mortem* examination the X-ray diagnosis of enlarged mediastinal glands had not been sustained, the glands being of normal size. The case was remarkable for the absence of demonstrable lesions. Specimens from spleen and lymphatic glands had been sent to Professor Welsh, of Sydney University, for further report.

Peripheral Neuritis.

DR. RUSSELL showed a patient presented at a previous meeting as suffering from peripheral neuritis due to a septic focus. This patient had made a complete recovery.

Aneurysm of Aorta.

DR. RUSSELL'S next patient was a man suffering from a very large aneurysm of the aorta. Members were given an opportunity of examining the patient and X-ray pictures were demonstrated.

McKnight Splint.

DR. E. S. MEYERS exhibited a McKnight splint used for fractures of the forearm or arm. This splint was useful for cases where difficulty was experienced in keeping fragments in position after reduction had been effected.

DR. A. G. ANDERSON presented a patient who had had such a fracture in the lower fourth of the forearm and who had been successfully treated on this splint.

Acute Abdominal Conditions.

DR. A. G. ANDERSON showed an old man who had been sent into hospital with a diagnosis of obstruction of the bowels, probably due to malignant growth. The patient had been jaundiced on admission. At operation the gall bladder had not been found; it had been represented by shrunken tissue. After prolonged search for the cause of the trouble, the common bile duct had been found to be enlarged. It has been incised and a soft pultaceous mass had been found which could not be delivered *in toto*. It had been pushed down into the duodenum, the wound in the common duct had been sutured and after the insertion of a gauze drain the abdomen had been closed. The patient had made an uninterrupted recovery.

Gall Stones.

DR. ANDERSON also exhibited some very pretty specimens of gall stones of the thorn apple type.

Malignant Disease of the Mouth.

DR. E. S. MEYERS showed a man, sixty-four years of age, who had suffered from a malignant growth of the floor of the mouth and under surface of the tongue with enlarged cervical glands. Six weeks before the meeting the glands of the right side of the neck had been removed by block dissection. Two weeks later the growth had been attacked. A mid-line incision from the lip through the chin to the hyoid bone had been made and flaps had been dissected laterally. The mandible had been divided in a vertical direction parallel to the masseter muscle on either side. The *symphysis menti*, the whole of the mouth and the under surface of the tongue had been removed *en bloc*. The mucous membrane had been sutured, the gap in the mandible filled with fat from flaps that had been reflected and the skin incision had been closed with drainage. The patient had made a good recovery from the operation and the functional and cosmetic results were good. Dr. K. Wilson had induced ether anæsthesia in this patient by the intra-pharyngeal method.

Dr. Meyers asked for an opinion regarding post operative X-ray procedure.

DR. A. T. NISBET said that he considered it almost criminal in these days of advanced X-ray knowledge not to give a patient operated on for cancer the benefit of this form of treatment. Even if deep ray therapy did not come up to some of the more optimistic expectations, there was a feeling that it was going to aid the surgeon considerably and that the outlook from the patient's standpoint would be a much brighter one. If X-ray therapy were to be used, however, sufficient exposure must be given through various ports of entry to kill the cancerous cells. Insufficient dosage meant stimulation of the remaining cancerous tissue and so did more harm than if no post-operative treatment had been carried out. A mild erythema from each skin area through which the rays were projected, was expected. In Dr. Nisbet's opinion, the danger of X-ray treatment in the hands of unskilled workers lay not only in giving an over-dose, but also in giving too little. There were still many critics among the medical profession regarding X-ray therapy in cases such as Dr. Meyers had shown, but Dr. Nisbet wondered if these critics some day found themselves affected with this dreadful scourge, whether they would not wish for the "slender" chance which deep X-ray therapy might give them.

DR. VAL. MCDOWALL said he was one of those not yet convinced of the value of deep X-ray therapy. From his own experience and from opinions he had obtained from others, he did not consider deep therapy to be of much value in cancer of the mouth and pharynx generally.

Skiagram of Ureter.

DR. C. M. LILLEY exhibited a skiagram showing a shadow in the region of the left ureter. The patient had been operated on, but no stone had been found in the ureter. A plate taken with an opaque catheter in the ureter had shown that the shadow of the catheter passed across the middle of the shadow in the region of the ureter.

Stone in the Ureter.

DR. A. G. ANDERSON presented a patient who had been admitted to hospital suffering with pain in the right side and hæmaturia. X-ray examination had shown a shadow in the region of the lower end of the right ureter. The point to decide had been whether the shadow was due to a stone. Dr. Anderson had performed cystoscopy; the left ureteric orifice had been barely visible and the right one could not be seen, so it had been impossible to pass a ureteric catheter. Dr. Anderson had asked Dr. Meyers to perform cystoscopy and these findings had been confirmed. Later Dr. Anderson had again performed cystocopy, having first injected intramuscularly a solution of indigo carmine. This revealed the left ureteric orifice, but no dye could be seen coming from the region of the right orifice. Dr. Anderson, on the strength of these findings, had considered operation to be justifiable. Operation had been performed after the method of Braasch, as described in "Mayo Clinic Foundation," Volume of 1916. The bladder had been filled, the peritoneum peeled off the bladder and pushed back until the ureter was exposed. The stone had been located and removed. Thompson Walker bladder retractors had greatly facilitated the deep dissection of the pelvis. The patient had made an uninterrupted and rapid recovery.

Necrosis of Mandible.

DR. JACK THOMSON showed a patient suffering from necrosis of the right mandible, with extensive destruction of the overlying tissue. This had extended so far back on the affected side as to expose the last molar teeth. The destructive process had extended down the tissues of the neck and even to the shoulder region. The patient's blood had not reacted to the Wassermann test. Anti-syphilitic

treatment had been instituted with definite amelioration of the trouble. As the right mandible was destroyed, it was removed. This had easily been done owing to the extensive destruction. The problem of effecting a plastic repair in this case had been made extremely difficult owing to destruction of skin. The whole of the cheek on the affected side had been destroyed. A flap had been taken from the sound side of the face, the skin had been displaced downwards and the flap swung round on an axis and placed in the gap after freshing of all its edges. The necessary adjustments to make the cosmetic effect as good as possible were made. The result in this case had been very good, considering the severity of the condition.

Fracture of Tibia.

DR. THOMSON also showed a patient who had been suffering from a compound comminuted fracture of the tibia. Seven distinct fragments could be counted in the X-ray picture. Despite the fact that overlying circulation had been bad, owing to a pre-existing varicose condition, the patient had made a good recovery.

Cholecystectomy.

DR. THOMSON'S third patient was a woman who had been admitted to hospital with a diagnosis of malignant disease of the ascending colon. At operation the condition proved to be one of gall stones. The interesting point in the case was the fact that the gall bladder, common duct and cystic artery could be delivered to the surface with such ease that the cholecystectomy performed had been as simple to do as the easiest appendicectomy. The specimen was demonstrated to the members. The patient had made an uninterrupted recovery.

Skiagrams Taken at a Distance.

DR. VAL. MCDOWALL exhibited several skiagrams taken at a distance of 1.8 metres (six feet). The resulting detail was excellent and better than skiagrams obtained of the same condition by the use of the Potter-Bucky diaphragm.

Psoriasis.

DR. K. BARRON FRASER demonstrated a patient who had been suffering from psoriasis and had been successfully treated with chrysarobin ointment and weak "Lysol" baths.

Ulcer of Stomach.

DR. A. G. ANDERSON presented skiagrams of two cases of ulcer of the lesser curvature of the stomach. In both instances excision of the ulcer had been performed without gastro-enterostomy. Both patients had completely recovered. In one patient (present at the meeting) an hour-glass constriction of the stomach had been present before operation. A skiagram of the condition after operation was presented and the functional result appeared to be excellent.

Tumour of Epigastrium.

DR. ANDERSON presented for DR. C. J. WEEDON a girl of fourteen years of age with tumour of the epigastrium.

Members were guarded in expressing an opinion of the cause of the condition.

Congress Notes.

AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

IT is announced that HIS EXCELLENCY THE GOVERNOR-GENERAL has arranged to attend the Inaugural Meeting of the Australasian Medical Congress (British Medical Association) in Melbourne on November 12, 1923. He will also give a garden party to members of Congress and their wives on the afternoon of November 14, 1923.

THE EARL OF STRADBROKE, Governor of Victoria, will be present at the Congress dinner.

Medical Matters in Parliament.

THE HOSPITALS AND CHARITIES BILL.

(Continued from page 279.)

IN regard to inquiries by the Board, MR. J. W. BILLSON moved an amendment to deprive the Board of the powers conferred by Sections 14 to 16 of the *Evidence Act, 1915*. Under this Act the Board would have power to compel the attendance of witnesses and examine them on oath. These powers were provided for in Clause 41. Mr. Billson held that the Board should not become a judicial body.

The amendment was not carried.

On the motion of MR. MCLEOD a new sub-clause was added to Clause 41, giving the Inspector of Charities certain powers of making inquiries.

Clause 42, providing penalties for obstruction of the Board or the Inspector of Charities in the performance of their duties, was passed.

Clause 43, dealing with the establishment of a fund, was passed. According to this clause a fund known as "The Hospitals and Charities Fund" is to be established. The sum of £130,000 is to be appropriated out of consolidated revenue. Salaries and expenses are to be paid out of that fund.

The Committee also agreed to Clause 44, which dealt with the matters to be considered in making payments out of the fund.

On the motion of MR. MCLEOD an amendment of Clause 45 was carried to the effect that approval of the Board would have to be obtained by any subsidized institution before buildings or alterations could be undertaken at a cost greater than £300.

The Committee then considered Clause 46:

> (1) Save with the previous consent in writing of the Board and in accordance with such conditions (if any) as are imposed by the Board, it shall not be lawful for—
>
> (*a*) The committee or managers of any institution or benevolent society; or
>
> (*b*) any person or body of persons whomsoever—
>
> to make or authorize the making of any general public appeal for subscriptions or contributions to any institution or benevolent society or to hold, conduct or authorize any race meeting, sports meeting, theatrical performance, bazaar, carnival, fête or entertainment (whether or not of a like nature to the foregoing) for raising money for any institution or benevolent society.
>
> (2) Every person being a member of any such committee or being one of such managers or one of any such body of persons who and every other person who contravenes or fails to comply with the provisions of this section or with any conditions imposed by the Board hereunder shall be liable to a penalty of not more than Fifty pounds.

MR. FROST moved that certain words in Sub-clause (1) be omitted. He did this with the object of striking out the whole clause. It was absurd that people who wished to work for charities should ask permission before they could be allowed to do so. It was an insult to them.

MR. MCPHERSON explained that the object was to prevent persons without authority collecting subscriptions on behalf of institutions. It was intended, however, to introduce an amendment providing that permission should be given by the committees of the institutions concerned.

DR. ARGYLE said that it was necessary to have some control, so that the public would not be worried to death by different institutions as in the past. By a general appeal was meant an appeal to the whole community.

The amendment was not carried.

MR. BEARDMORE moved:

> That all words beginning with "or to hold" in Sub-clause (1) to the end of the sub-clause be omitted.

The amendment was carried.

MR. BEARDMORE moved:

That the following new sub-clause be inserted:
(2) No person or body of persons shall hold, conduct or authorize any race meeting, sports meeting, theatrical performance, bazaar, carnival, fête or entertainment (whether or not of the like nature of the foregoing) or other method for raising money for any institution or benevolent society, without the previous consent of the committee thereof.

MR. J. W. BILLSON pointed out that the consent of the Chief Secretary was always necessary before race meetings could be held.

The amendment was carried.

MR. BEARDMORE moved that "£50" be omitted from Sub-clause (2) and "£20" be inserted.

This was carried.

MR. WETTENHALL moved the insertion of two new sub-clauses:

(4) No person or body of persons shall appeal for subscriptions or contributions to any institution or benevolent society outside the particular district or area which such institution or benevolent society serves unless with the approval of the Board.
(5) If any question arises as to the district or area which such institution or benevolent society serves, the Board shall decide same and its decision shall be final.

Mr. Wettenhall pointed out that these new sub-clauses dealt with the question of poaching. The object was to prevent people going into the country districts and soliciting subscriptions without being subjected to any control whatever.

DR. FETHERSTON thought that the new provisions of these sub-clauses would be far-reaching in regard to institutions such as the large metropolitan institutions, which were practically State institutions.

DR. ARGYLE said that institutions, such as the Melbourne Hospital, would have a perfect right to go to the country for support.

The amendment was agreed to and the clause as amended was adopted.

Clause 47, requiring the Board to prepare an annual report for presentation to Parliament through the Minister was approved.

Clause 48 was approved. This clause deals with the evidence that is necessary to establish the identity of the secretary of an institution.

Clause 49 was also adopted. This clause deals with the admissibility as evidence of documents signed by the Chairman of the Board.

The second part of the Bill is concerned with hospitals and philanthropic institutions generally.

Clause 50 was approved. According to this clause, Part II. of the Bill does not apply to any of the separate institutions mentioned in the third schedule.

The clause (51) dealing with the incorporation of institutions mentioned in the second schedule, which have not previously been incorporated, was adopted.

The clause (52) providing that other charitable institutions have the right to apply for incorporation was also allowed to stand. The procedure to be adopted in such incorporation is defined in the clause.

Clause 53 was discussed. This clause deals with the transfer of trust property to an incorporated institution and the power to appoint an incorporated institution custodian trustee of trust property.

MR. WEBBER held that this clause, taken in conjunction with Clause 69, would defeat the object of a testator in leaving property to a charitable institution.

MR. MCPHERSON said that this would not be so, but that there would be a considerable saving of expense to institutions. In support of his statements he read a memorandum from the Law Department as follows: "The object of these clauses is to obviate the necessity of taking legal proceedings to obtain the sanction of the court in cases in which a charity wishes to sell or otherwise deal with land belonging to it and it has no authority so to do under the trust under which the land is held. All land belonging to a charity is land held upon trust for the charity and unless the instrument by which the trust is created confers on the charity or the trustees in whom the land is vested a power, *e.g.*, to sell the land, the charity cannot sell the land and give a good title to a purhaser without first obtaining the sanction of the court."

The clause was adopted.

On the motion of DR. FETHERSTON, Sub-clause (1) of Clause 54 was amended so as to make it compulsory for every incorporated institution to be governed by a committee of not less than seven members elected by the contributors of the institution.

In commenting on Sub-clause (5) of the same clause, Dr. Fetherston said that the limitation of the number of medical practitioners on a committee to one-quarter of the whole number was an insult offered to the medical profession. No other profession was treated in this way. He held that it was perfectly right that not more than one-quarter of the committee should be members of the honorary medical staff. The adoption of this clause would make an impossible position for the Medical Benevolent Association.

DR. ARGYLE pointed out that the Medical Benevolent Association was not concerned with the Bill in any way.

MR. MCPHERSON said that as long as the Medical Benevolent Association did not appeal for funds, it would not have to be registered.

The clause as amended was adopted.

Clause 55 and 56, dealing with interim committees of management and the power of an institution to change its name, were also adopted.

Consideration was next given to Clause 37, as follows:

The secretary of every incorporated institution acting under the authority of the committee thereof shall call an annual general meeting of the contributors to such institution, to be held on some day between the first day of July and the thirty-first day of August in each year, for the election of members of the committee and other elective officers and for any other purposes.

MR. J. W. BILLSON moved an amendment:

That the words "the contributors to such institution, be omitted with the view of inserting the words "persons whose names appear on the Assembly roll for the electoral district in which such institution is situated."

Mr. Billson said that he wanted all the people to take a greater interest in charitable institutions. He held that the workers had no voice in the election of committees and officers.

MR. MCPHERSON said that an opportunity of discussing this point would occur later on, when defining the term "contributor."

MR. BILLSON, however, pressed his amendment, which was defeated.

An amendment was introduced into Clause 59, providing for fourteen days' notice by the secretary of an institution before an election of office-bearers could be held.

Clause 60, defining a quorum for annual meetings of institutions, was accepted.

In connexion with Clause 61, dealing with the question of voting, MR. MCPHERSON moved:

That the following sub-clause be added to the clause:

(2) If at least twenty contributors to any incorporated institution by writing under their hands delivered to the president or the secretary of the institution at least fourteen days before the day for any election by contributors require that the time for taking the poll at such election shall in the case of contributors who vote in person be from eight o'clock in the morning to seven o'clock in the evening the poll shall be taken accordingly.

MR. J. W. BILLSON objected to the proposal that the adoption of the hours mentioned should be contingent upon the application of twenty contributors. He moved:

> That all the words in the proposed new sub-clause from "if" to "require that" be struck out.

After some discussion, MR. MCPHERSON said that he would agree to make the hours of polling from eight o'clock in the morning till seven o'clock in the evening without any conditions.

MR. BILLSON'S amendment was agreed to and the clause as amended was adopted.

Clauses 62 and 63, dealing with the appointment of honorary office-bearers and the filling of casual vacancies, were adopted.

Clause 64 was amended to provide for the service of notices in regard to an incorporated institution by prepaid post.

Clause 65 was amended on the motion of MR. J. W. BILLSON so that the chairman of any meeting of contributors of an incorporated institution should have only a casting vote.

In connexion with Clause 66, dealing with the power of committees of institutions to make by-laws, MR. J. W. BILLSON moved that the words allowing the committee to determine the number of votes of contributors be omitted. He said that he wished to do all he could to rob wealth of any power it might possess on account of the size of its contribution. He wished every man who contributed, to have one vote only. He did not think that any man who subscribed to charitable institutions, did so for the purpose of voting power.

MR. MCPHERSON said that he wanted to do the best that he could for these institutions and he was inclined to leave it to the good sense of the committee to do what it thought wise.

The amendment was lost.

On the motion of DR. ARGYLE, an amendment was passed making it unnecessary for approval to be obtained by the Board before by-laws passed by a committee of a charitable institution could be brought into force. He pointed out that, according to another sub-clause in the same clause, the Governor-in-Council had the power to revoke any by-law.

The amendment was approved and the clause as amended was adopted.

The Committee of the House agreed to the clause (67) dealing with the right of a contributor of an institution testing legally the by-laws.

Clause 68 was approved. This clause deals with the right of philanthropic societies or associations to incorporate and has reference to their management.

Considerable discussion occurred over Clause 69, dealing with the power of an institution to sell or exchange land in certain circumstances.

MR. WEBBER opposed the clause. He held that it gave too much power to the committee of an institution. All that it would have to do was to ask permission of the Governor-in-Council and it could do anything that it wished.

MR. MCPHERSON said that this was not so and that there could be no violation of any trust conditions.

MR. SNOWBALL said that it was proposed to allow the Governor-in-Council without any safeguard power to allow an institution to ignore a trust.

MR. MCPHERSON asked the Committee of the House to pass the clause and he undertook to call a conference of the legal members of Parliament and of the law officers to discuss the clause before the third reading of the Bill.

The clause was allowed to stand.

Clause 71, dealing with the power to sanction buildings, alterations and improvements, was approved.

Clause 72 was also approved. This clause deals with applications to the Governor-in-Council by the majority of a committee and the classes of land in respect of which authority to sell *et cetera* is not required.

Clause 73, defining the application of the third part of the Bill to registered institutions only was adopted.

In regard to Clause 74, dealing with the liability of a patient, discussion ensued on Sub-clause (1), as follows:

> Subject to the provisions of Section 20 of the *Venereal Diseases Act, 1916*, and Section 152 of the *Health Act, 1919*, every in-patient and every out-patient who is admitted into or maintained by or who receives relief from any registered institution shall be liable to contribute towards the funds of the institution according to his means any sum in respect of such maintenance, attendance or relief as the committee demands, not exceeding £3 per week.

In reply to MR. J. W. BILLSON, MR. MCPHERSON said that patients with venereal diseases were exempted by other Acts from the provisions of this clause.

DR. FETHERSTON pointed out that in many hospitals the average cost of treatment for each patient was more than £3 a week.

MR. MCPHERSON moved as an amendment:

> That the words "£3 per week" be struck out with the view of inserting the words "the actual cost of such maintenance, attendance or relief."

The amendment was approved and the clause as amended was adopted.

Clause 75, dealing with the liability of patients to contribute towards the cost of maintenance or relief was then discussed.

MR. WEBBER pointed out that under this clause the committee of an institution would have power to require any person to show cause before a Court of Petty Sessions why he should not pay towards his maintenance in the institution. The Court would have power to compel him to mortgage or sell his property in order to pay. Mr. Webber said that under the Commonwealth *Old Age and Pensions Act* the fact that a person owned a house did not make him ineligible to receive a pension. Owning a house did not guarantee sustenance. A person using a charitable institution under false pretences should be made to pay. The committee of the institution concerned should have the power to sue and compel payment.

MR. MCPHERSON said that this clause had been on the statute book as part of the original Act for many years. It was, in his opinion, a wise provision and was intended to be applied only to people who wished to deceive the committee.

MR. SOLLY hoped that the Treasurer would allow a minimum amount in respect to persons liable to taxation. Care should be taken to avoid making an arbitrary law which would act unfairly or cruelly in some instances.

MR. MCPHERSON undertook to consult with the Parliamentary Draftsman to see what would be the effect of what Mr. Solly had suggested.

In regard to Clause 76, dealing with the power of a Court of Petty Sessions to deal with pensions, salaries *et cetera* in payment of a debt, MR. MCPHERSON said that the clause was intended to deal only with a man who had deliberately tried to deceive a charitable institution. He promised to look into the clause, together with the preceding one.

Clause 77, dealing with the payment by executors on behalf of infants, and Clause 78, dealing with the procedure, were approved.

In considering Clause 79, MR. MCPHERSON said that this clause and the five following it (constituting Part IV. of the Bill), dealt with the resumption of land for institutions. He said that when an institution required a piece of land to complete a property, it was not right that it should have to pay fancy prices for that land. These clauses provided that, after certain negotiations, the provisions of the *Lands Compensation Act* should take effect.

The clauses were approved.

Several additions were made to Clause 85, dealing with the power of the Governor-in-Council to make regulations for various matters that were described as machinery provisions.

Correspondence.

PUERPERAL INFECTION.

Sir: In The Medical Journal of Australia of February 17, 1923, there is a very interesting paper on "Puerperal Sepsis," by Dr. Lipscomb, which was freely discussed by many members. The general opinion seems to have been in favour of the auto-infection theory of origin.

As a general practitioner, I say this theory is as dangerous as it is wrong. I believe the infection is usually conveyed by the doctor's hands.

There may be cases of auto-infection, but they are rare.

In this district during the last twelve years, no case of sepsis has occurred among the confinements conducted by midwives only. In this State—Western Australia—all midwives are registered. To my sorrow and dismay I have been able to trace the infection in some cases to myself.

The writer (Dr. Lipscomb) and most of those who discussed the paper, are not general practitioners. Their hands do not touch surgical dirt nearly so often as those of a general practitioner. And it is a fact that at times nearly all of us do not take quite the same care in disinfection of our hands before a vaginal examination as we do before a major operation. We generally do, but not always. We are rushed or over-tired in difficult situations, with little help and few appliances. If the general practitioner always took the same care, there would not be so much puerperal sepsis.

In The Medical Journal of Australia of October 30, 1920, I advocated a routine injection of ten cubic centimetres of polyvalent anti-sterptococcic serum during labour. In spite of that, I had a fatal case of puerperal sepsis and have abandoned that line of prevention.

I am sure the more the doctor looks upon himself as the infector, the more careful he will be.

The greatest number of septic cases are those where the infection is weak and the resistance is strong. The patient is only a day or two off colour and then goes along a normal course. The doctor is apt to think she was not septic. Perhaps he gets a case of severe sepsis in a few days and does not realize that he has carried the infection.

It is well to remember that the great majority of puerperal sepsis, like the great majority of many other infective diseases, are very mild and, because they are mild, so much more dangerous, because they are not recognized. I am speaking of my personal experience.

It is not easy to take the blame, but I am sure we general practitioners usually deserve it. Of course, it is very difficult for us to keep our hands clean, but we are more likely to do so if we frankly realize our dangers and shortcomings. If we avoid touching infective wounds with bare hands and yet consider ourselves suspect, much will be gained. We will, by considering ourselves suspect, be very careful in the disinfection of our hands at every confinement.

The midwives in this district had no puerperal sepsis; I did. Are they more careful in the disinfection of their hands; No, they are not. Why were they free? Because they had not handled infective material.

Yours, etc.,

Edward E. Moule.

Wagin, Western Australia,
February 26, 1923.

Hospitals.

CRICKET MATCH.

The annual cricket match between the members of the honorary medical staffs of the Sydney and Royal Prince Alfred Hospitals will be played at the University Oval on Wednesday, March 21, 1923, at 2 o'clock p.m.

Past members of the two hospitals will be welcome.

Naval and Military.

APPOINTMENTS.

The following retirements, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, No. 17, of March 1, 1923:

Permanent Naval Forces of the Commonwealth.

Sea-Going Forces.

Termination of Appointment.

The temporary appointment of Surgeon-Lieutenant-Commander Horace Palmer Margetts, O.B.E., is terminated, dated 14th July, 1922.

Australian Military Forces.

Second Military District.

Australian Army Medical Corps.

Major (Honorary Lieutenant-Colonel) L. W. Bond, D.S.O., is transferred to the Unattached List, 10th February, 1923.

Captain (provisionally) E. H. Knowles is retired under the provisions of Australian Military Regulation 152 (1), 20th January, 1923.

Australian Army Medical Corps Reserve.

The appointment of Honorary Captain F. S. W. Zlotkowski is terminated under the provisions of Section 16 of the *Defence Act*, 31st January, 1923.

Third Military District.

Australian Army Medical Corps.

The resignation of Captain D. M. Ross of his commission is accepted, 22nd January, 1923.

Sixth Military District.

Australian Army Medical Corps Reserve.

Honorary Captain A. E. Hayward is retired under the provisions of Australian Military Regulation 152 (1), 25th February, 1923. (Ex. Min. No. 39.)

Proceedings of the Australian Medical Boards.

VICTORIA.

The undermentioned have been registered under the provisions of the *Medical Act, 1915*, as duly qualified medical practitioners:

Blackburn, John Herbert, L.R.C.P. *et* S., Edin., L.R.F.P.S., Glas., 1918, 25, Princes Terrace, St. Kilda Road, Melbourne.

Galbraith, James Biggam Douglas, M.B. *et* Ch.B., Glas., 1917, c.o. Mrs. Allan, 13, Gardenvale Road, Gardenvale.

Stegmann, Ferdinand Henry August, L.R.C.P. *et* S., Edin., L.R.F.P.S., Glas., 1922, c.o. P. Russell, Esq., Solicitor, 430, Chancery Lane, Melbourne.

Williams, John Pryce, M.R.C.S., Eng., L.R.C.P., Lond., 1910; D.P.H., R.C.P.S., Eng., 1919, c.o E. Shears, Esq., 95A, Mathoura Road, Toorak.

Additional Diplomas Registered.

Johnston, William Wallace Stewart, M.D., 1921 (Univ. Melbourne).

Meade, Frampton Garnsey, M.D., 1922 (Univ. Melbourne).

Names Restored to the Register.

BROWN, EDGAR JABEZ.
DANIEL, CHARLES JOHN.
MACKY, STEWART.
MORROW, ROBERT.
MUIR, WILLIAM CHARLES CRAWFORD.

Names of Deceased Practitioners Removed from the Register.

BUNTINE, ROBERT ANDREW.
CAMPBELL, COLIN.
CLARKE, CYRIL LOWTHER.
HERRING, EDWARD KEN.

Books Received.

CARRIERS IN INFECTIOUS DISEASES, by Henry J. Nichols, M.D., M.A., with a Section on Carriers in Veterinary Medicine, by R. A. Kelser, D.V.M., M.A.; 1922. Baltimore: Williams & Wilkins Company; Demy 8vo., pp. 184, with nine plates. Price: $3.00.

DISEASES OF THE SKIN, by Robert W. MacKenna, M.A., M.D., B.Ch. (Edin.); 1923. London: Baillière, Tindall & Cox; Royal 8vo., pp. x. + 460, with 166 figures in the text and many formulæ. Price: 21s. net.

GREFFES TESTICULAIRES, par le Docteur Serge Voronoff; 1923. Paris: Librairie Octave Doin; Royal 8vo., paper cover, pp. 83, with 19 plates.

INDUSTRIAL HYGIENE AND MEDICINE, by E. W. Hope, O.B.E., M.D., D.Sc., in collaboration with W. Hanna, M.A., M.D., D.P.H., and C. O. Stallybrass, M.D., D.P.H.; 1923. London: Baillière, Tindall & Cox; Demy 8vo., pp. viii. + 766, with 122 plates and figures in the text. Price: 25s. net.

MEDICAL AXIOMS AND APHORISMS AND CLINICAL MEMORANDA, by James Alexander Lindsay, M.A., M.D., F.R.C.P.; 1923. London: H. K. Lewis & Company, Limited; Crown 8vo., pp. viii. + 192. Price: 6s. net.

THE BACTERIOPHAGE: ITS ROLE IN IMMUNITY, by F. d'Herelle, Pasteur Institute; English Edition, authorized translation by George H. Smith, Ph.D.; 1922. Baltimore, U.S.A.: Williams & Wilkins Company; Demy 8vo., pp. 287, with one plate and fourteen charts. Price: $4.00.

THE BIRTH AND EARLY DAYS OF OUR AMBULANCE TRAINS IN FRANCE, AUGUST, 1914, by Colonel G. A. Moore, C.M.G., D.S.O., M.D. ("Wagon-Lit"); Second Edition; 1922. London: John Bale, Sons & Danielsson, Limited; Demy 8vo., paper cover, pp. 24, with five illustrations. Price: 1s. net.

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA: Third Series, Volume Forty-Third; 1921. Philadelphia: Printed for the College; pp. 558.

Medical Appointments.

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APPOINTMENTS to the Advisory Council of Education under the *Education Act, 1915*, of South Australia include DR. I. G. M. HALLEY (B.M.A.).

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DR. CHARLES BADHAM (B.M.A.), Junior Assistant Microbiologist, has been appointed Assistant Microbiologist, Office of the Director-General of Public Health, New South Wales.

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DR. C. O. HELLSTROM (B.M.A.) has been appointed Government Medical Officer at Wilcannia, New South Wales.

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DR. M. L. COUTTS (B.M.A.) has been appointed Public Vaccinator at Nyah West, Victoria.

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DR. JOSEPH LOVE has been appointed Acting Public Vaccinator at Balaclava, Victoria.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

WATERFALL SANATORIUM, N.S.W.: Assistant Medical Officer.

RENWICK HOSPITAL FOR INFANTS, SYDNEY: (1) Hon. Assistant Surgeon; (2) Hon. Opthalmic Surgeon.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmain United Friendly Societies' Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phœnix Mutual Provident Society.
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Manchester Unity Independent Order of Oddfellows Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

MAR. 20.—New South Wales Branch, B.M.A.: Council (Quarterly Meeting).
MAR. 21.—Western Australian Branch, B.M.A.: Branch.
MAR. 21.—South Sydney Medical Association, New South Wales: Annual Meeting.
MAR. 22.—Brisbane Hospital for Sick Children: Clinical Meeting.
MAR. 23.—New South Wales Branch, B.M.A.: Branch (Annual Meeting).
MAR. 23.—Queensland Branch, B.M.A.: Council.
MAR. 27.—New South Wales Branch, B.M.A.: Council; Election of Officers and Appointment of Standing Committees.
MAR. 28.—Victorian Branch, B.M.A.: Council.
MAR. 29.—South Australian Branch, B.M.A.: Branch.
APR. 4.—Victorian Branch, B.M.A.: Branch.
APR. 6.—Queensland Branch, B.M.A.: Branch.
APR. 10.—New South Wales Branch, B.M.A.: Ethics Committee.
APR. 11.—Western Australian Branch, B.M.A.: Council.
APR. 11.—Melbourne Pædiatric Society.
APR. 12.—Victorian Branch, B.M.A.: Council.
APR. 13.—New South Wales Branch, B.M.A.: Clinical Meeting.

Editorial Notices.

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